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COMMERCIAL FISHERIES REVIEW

Formerly "FISHERY MARKET NEWS"



Vol. 8, No. 7

JULY 1946

FISH and WILDLIFE SERVICE
United States Department of the Interior
Washington, D.C.



COMMERCIAL FISHERIES REVIEW



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRIES
PREPARED IN THE DIVISION OF COMMERCIAL FISHERIES

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Applications for COMMERCIAL FISHERIES REVIEW, which is mailed free to members of the fishery industry and allied interests, should be addressed to the
Director, Fish and Wildlife Service, United States Department of the Interior, Washington, 25, D.C.

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A CARDBOARD SMOKEHOUSE

By Walter A. Rust*

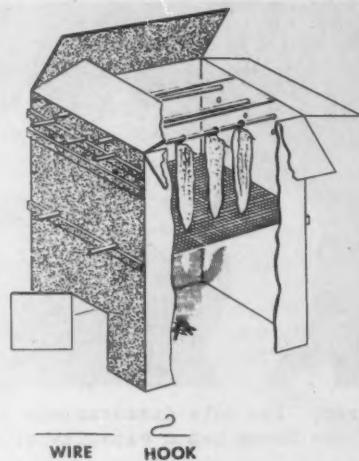
An inexpensive smokehouse made from a cardboard carton or cartons can be built by any individual who can use a knife, saw, and hammer. It can be set up in the back yard or on a campsite, or it can be folded flat and transported to any locality. It has the advantages of being efficient and easy to operate. The construction and operation of the smoker and the preparation of the fish for smoking are explained in detail in this article.

CONSTRUCTION: A carton which is approximately 30 inches square and 48 inches high is desirable. Although other sizes may be used, the minimum size should be not less than 24 inches in width or depth, nor less than 40 inches in height. One end of the carton should be removed by cutting along the edge folds, and this opening used as the bottom. At the other end, which is to be the top, the flaps should be unfastened so that they can be bent back and folded together again to make a cover.

If the box is weak and there is a tendency toward buckling when pressure is applied at the top, it can be strengthened by tacking a three-quarter inch strip of wood vertically on the outside at each corner. Large-head roofing nails (three-quarter inch) should be driven into the strips from the inside. Four more strips should be nailed horizontally on the outside, on opposite sides, in the same manner as for the corner pieces. Two of these should be nailed 4 inches from the top and the other 2, 20 inches from the bottom. A door 10 inches wide and 12 inches high should be cut in the center of 1 side at the bottom for stoking the fire. It can be made by 2 cuts, 1 vertical and 1 horizontal. The door can then be bent out, the cardboard on the uncut side acting as a hinge.

Old broom or mop handles, bamboo poles, iron rods, or sticks that will not sag can be used for rods. Seven are necessary for the 30-inch size carton. They should be long enough to extend at least 2 inches beyond the outside of the carton. Three of the rods support the fish, 2 hold the tray, and 2 keep the flaps from sagging. Holes should be cut through the cardboard just above the wood strips to enable the rods to rest on the strips. The holes for the rods which support the flaps are just below the fold. The rods should be spaced far enough apart that the fish do not touch when hung. The 2 outside holes are 6 inches from the

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corner, and the 3rd is in the center, an equal distance from each of the side holes. Smaller cartons require only 2 such rods unless the fish are so small that 3 can be used. If trays are used, additional strips of wood should be tacked 4 inches below the top strips, the holes corresponding with those above. Trays can be made with one-half or one-fourth inch mesh hardware cloth, cut to fit inside the box, the edges bent over and hammered down flat.

Hooks can be made from pieces of 8- or 10-gauge steel wire 14 inches long. Each piece should be bent in the middle around a hammer handle or broom stick, and the hook end bent the same way, to form a goose-neck. The opening of the hook must be large enough to permit it to slip easily over the rod, and the end must be bent so that it will not slip off the rod during the smoking process. Heavy wire coat hangers can be used to make the hooks.

When a single carton of the above dimensions is unavailable, 2 cartons of equal size, at least 24 inches or more in height or width, can be substituted.



On 1, the top and bottom should be completely removed, retaining the sides. The other box bottom should be cut away and the top flaps telescoped over the other until the desired height is obtained. Strips of wood should be tacked on the outside of all the 4 sides of the overlapping space to insure against further telescoping and to make a seal to prevent an undue loss of smoke.

The single carton smokehouse can be flattened and transported to any place desired.

Its sole disadvantage is that it cannot be exposed to rain. A 30-inch square house has a capacity of about 60 pounds of "butterflied" or split fish.

From 5 to 6 hours are required to smoke fish ready to eat, the exact period depending upon the size of the fish. The carton will not catch fire if the ventilation is controlled properly by sufficient suffocation of the fire to make smoke instead of a blaze and if too much wood is not placed on the fire at any time. Should too large a blaze develop, it can be smothered with sawdust or reduced by removing a portion of the blazing wood.

OPERATION: A fire should be built on a level plot of ground with the wood appropriate for smoking. The wood pieces should be about 8 inches long and 1 inch in diameter. Semi-dry, non-resinous woods such as oak, hickory, beech, and sweet bay, in combination with 1 or more of the following: river mangrove, Australian pine, palmetto roots, button wood, apple, citrus, and leached drift wood give excellent flavor. Corn cobs, coconut husks, sawdust, and chips of the above woods are also used. Sawdust burns slowly and makes a good smudge. However, too heavy a smoke over-emphasizes the smoke flavor. Any wood containing pitch or similar material should never be used.

While the fire building is in progress, the carton can be brought nearby and made ready. First, the 2 bottom rods should be placed to support the tray that

will catch any fish which drop during the smoking. Then the rods from which the fish are hung should be shoved in place. The prepared, split fish should be woven on the hook by entering the flesh side just below the collar bone, out through the skin on the other side, back again into the flesh and as near to the back bone as possible. This process should be repeated, having the hook come out of the flesh side below the other collar bone. If done properly, the hook will not pull through the flesh during the smoking period. Preparation of fish in this manner holds them flat, increasing the capacity of the smokehouse and shortening the time for smoking. The fish should be hung on the rods and spaced so that they do not touch. If there are a few large fish, too large for the hooks, they should be placed on an oiled or greased tray. After the rods have been hung with fish, the tray containing the large fish should be placed on top of the rods (a tray can always be used to increase the capacity of the smokehouse). The 2 top flap supporting rods should then be inserted and the top of the carton closed by folding the flaps together. After the fire has been started, the smokehouse can be lifted over it so that the fire is in the center of the house and the door is not on the lee side. All holes that do not have rods through them should be filled or covered. If the flaps do not fold together properly, allowing smoke to escape, a piece of cardboard should be laid over the opening and weighted down with a stone or other handy material. The door should be tightly closed. The smokehouse should not be completely airtight, however, but enough air allowed to enter to keep the fire smoldering. Dirt should be pushed up against the side at the bottom to prevent undesirable drafts.

The fire must be stoked about every half hour. For the first 4 or 5 hours, the temperature should be held at about 100° F., or below, then increased to between 180° to 200° F. for about an hour to cook the fish. The progress of the smoking can be observed by lifting the flaps. The first observation should be made 2½ to 3 hours after the house is set over the fire; thereafter, every half hour until the fish are ready to take out. The cooking is completed when the backbone of the fish separates from the meat. Then the smokehouse should be lifted from the fire and the fish either left in the smokehouse to cool and dry or lifted onto a strip of hardware cloth laid on a table in such a manner that air will come in contact with all surfaces of the fish. To keep insects away from the fish while they are cooling and drying, cover with mosquito netting.

This aforementioned method is called the hot smoke process. The cold smoke method, on the other hand, does not require a high temperature. Fish treated by the latter process have to be reheated again before eating. For either method, after the fish are dry, they may be wrapped individually in waxed paper or cellophane and placed in a refrigerator or other cool place, or they may be frozen or processed in tin cans or glass jars. When processed or frozen, they can be stored as any other fishery product.

The hot smoke method imparts a delicious flavor to the fish and leaves the texture succulent.



Preparation of the Fish for Smoking: Fish which are to be smoked should be scaled and the heads removed, leaving the collar bones attached. The belly should then be cut and the intestinal material removed. A round fiber brush is desirable for removing all blood and other undesirable material from the fish. The fish should be split to the back skin but not through it, washed thoroughly, and placed in a brine composed of one-half cup of salt to 1 gallon of water. The brine container can be either wood, enamelware, or a stoneware crock. It is desirable to keep the fish in the brine until all of them have been cleaned and split. If the fish are cleaned in the afternoon or evening, too late to smoke the same day, they should be drained on a draining board or on a piece of hardware cloth and then salted on both sides and inside. The salt should be of a good grade, containing less than 1 percent impurities, without driers or iodine. A handy salt shaker can be made from a half or 1 pint size salad dressing jar. The fish should be laid flat, flesh side up, in an enameled pan or crock. After they are all salted, they should be covered with waxed paper and put in a refrigerator or other cool place overnight. In the morning they should be placed on the hooks and hung in the smokehouse. If they contain excess moisture, they should be allowed to drip for 15 minutes before the smokehouse is set over the fire.

When the cleaning and smoking of the fish are to be undertaken the same day, the same preliminary cleaning preparations should be completed to the point where the fish are salted. Instead of being salted and held overnight, they should be placed in a brine made of 4 cups of salt and 1 gallon of water. The fish should remain in the brine from one-half to 1 hour, depending on their size and thickness. They should be removed from the brine, rinsed in cold, fresh water, drained for 10 minutes and allowed to hang in a cool, breezy place for about an hour, or until the surface has a shiny appearance. They are then ready for the smokehouse.



BROILED SMOKED FISH

Wash, clean, and freshen the smoked fish in cold water for one hour, or longer if necessary. Drain, dry, and sprinkle well with butter or cooking oil. The broiler should be preheated to 350° F. Place on the rack, flesh side up. Broil 3 minutes, then turn and finish broiling 4 minutes. Serve with lemon and butter, or if preferred, with melted butter and pepper. Large fish need several more minutes of broiling.

FEEDING FISH MEAL TO DUCKLINGS

By Hugo W. Nilson*

Considerable concern has been expressed by stock and poultry raisers that feeding fish meal would result in fishy or other off flavors in the meat of farm animals. Lanham and Nilson (1946) and Nilson and Schayer (1946) reported that feeding rations containing about 25 percent fish meal did not adversely affect the flavor of the flesh of 6-week old chicks or 8-month old pullets. Bryant and Stevenson (1939) and others, however, have reported a fishy flavor in the meat of turkeys which had been fed fish meal. Apparently, the various species of domestic fowl may react differently in this respect.

It was, therefore, considered desirable to feed ducklings with rations containing a high level of a good grade of commercial fish meal in order to note any effects on the flavor of the flesh. In order to make the experiments more critical, several groups were also fed meals which had been experimentally spoiled under conditions of high heat and humidity (Lanham and Nilson, 1942). These meals had a very foul odor.

EXPERIMENTAL METHODS AND DATA: On July 6, 1942, 15 newly hatched Indian Runner ducklings were purchased from a hatchery. These were allotted into four groups and housed in battery cages with an environmental temperature of 80° F., and with brooding facilities in each cage. The ducklings had dry feed and water before them at all times. They were weighed, individually, once weekly, and the feed intake by groups was also recorded each week. The latter data are only approximate, since there was considerable wastage of feed in the water troughs.

The basic ration, in parts by weight, was composed of the following:

Alfalfa meal	- 2.5	Ground yellow corn	- 68	Salt (containing enough
Cod liver oil	- 1.0	Pilchard meal	- 25	manganese for 100 parts
Dried brewer's yeast	- 1.0	Soybean oil	- 1.0	per million of ration) - 0.5
		Wheat germ	- 1.0	

One group received all commercial meal, one 80 percent commercial and 20 percent experimentally spoiled meal, and another only the experimentally spoiled meal. The remaining group was fed a control mash in which the fish meal and 10 parts of corn meal were replaced by 30 parts of meat meal and 5 parts of dried skim milk. The fish meals contained about 70 percent protein.

Two of 4 ducklings fed the meat meal-skim milk ration suffered from perosis. One duckling grew so poorly that the data are not included in the summary. It weighed only 430 grams after 5 weeks as compared with an average of 971 grams for the other members of the group, and was completely helpless. It was offered the

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ration containing both commercial and spoiled meal, but evidently ate very little feed. This duckling made an uneventful recovery when allowed to feed on pasture and was still alive early in 1946.

The data in Table 1 show that all of the groups fed fish meal had a heavier mean liveweight than the group fed meat meal and skim milk. In fact, only 2 of 10 ducklings fed fish meal weighed less than the heaviest 1 in the group fed meat meal and skim milk. One of these belonged to the group fed the experimentally spoiled meal and weighed only 908 grams as compared with 1215, 1237, and 1256 grams for the others. Except for this duckling, the group fed spoiled fish meal would have had the best record. The number of ducklings used was small, so the differences in gain in liveweight were not statistically significant.

Table 1 - Gain in Weight of Ducklings Fed Rations Containing Commercial and Experimentally Spoiled Pilchard Meal for a 6-week Period

Ration Designation	Number of ducklings	Average Liveweight Initial Grams	Average Liveweight Final Grams	Daily gain in weight Grams	Coefficient of variation Percent	Food per gram gain in weight Grams
Indian Runners:						
Commercial	3	39	1192	2.75	17	2.45
80 percent commercial, and 20 percent spoiled	3	36	1214	2.81	12	2.41
Spoiled	4	40	1154	2.64	16	2.81
Meat meal, and dried skim milk	4	39	885	2.02	19	2.98
Pekings:						
Commercial	4	65	1212	2.73	14	3.23

At the close of the experiment, the ducklings were killed and dressed. They were distributed to various staff members for cooking and taste testing. No fishy or other off flavor in the flesh was reported.

On July 5, 1945, 4 1-day-old Peking ducks were obtained from a hatchery. These were kept as a group under the environmental conditions mentioned previously. The ration fed, in parts by weight (Titus, Hammond, and Whitson, 1943) consisted of:

Commercial pilchard meal - 4.5	Soybean oil meal - 12.1	Ground oyster shells - 1.0
Ground yellow corn meal - 54.5	Cottonseed meal - 5.0	Steamed bone meal - 0.9
Ground oats, or wheat middlings - 10.0	Alfalfa meal - 8.0	Salt plus a little manganese - 0.9
	Dried distiller's solubles - 3.0	Cod liver oil - 0.1

This wartime formula was used to determine the nutritive value of certain fish meals for chicks, and the experiment with ducklings was more or less incidental. The objects of the experiment were to determine the growth of ducklings fed a ration in which a fairly low level of fish meal supplied the only animal protein; to determine the effect of the ration on the flavor of the meat; and to determine if feeding a wet mash was preferable to feeding a dry mash, as was used in the previously reported experiment. Dry feed was weighed out twice daily in a trough and mixed with enough water to make a fairly thick paste. From the experimental feeding standpoint, this method was more satisfactory than offering dry feed, but there was still considerable wastage, since the ducklings insisted on mouthing food in the water trough before swallowing.

The data in Table 1 show that these ducklings grew nearly as well as those fed the rations containing much more fish meal. Taste tests indicated no fishy or other off flavors in the meat, although the dressed ducks were quick frozen and kept in storage for 4 months.

The conclusion reached was that rations containing a high level of fish meal do not produce fishy or other off flavors in the flesh of 6-week old battery fed ducklings.

LITERATURE CITED

BRYANT, REECE L., and STEVENSON, GLADYS T.

1939. Fishy flavor in turkey meat caused by feeding menhaden fish meal.
Vir. Agr. Exp. Sta. Bull. 321.

LANHAM, WILLIAM B. JR., and NILSON, HUGO W.

1942. The effect of heat and moisture on the feeding value of pilchard meal.
U. S. Fish and Wildlife Service, Research Report 3.

1946. Some studies on the feeding value of fish meals. Manuscript submitted for publication. United States Department of the Interior.

NILSON, HUGO W., and SCHAYER, RICHARD W.

1946. Some studies on feeding fish meals to pullets. Manuscript submitted for publication. United States Department of the Interior.

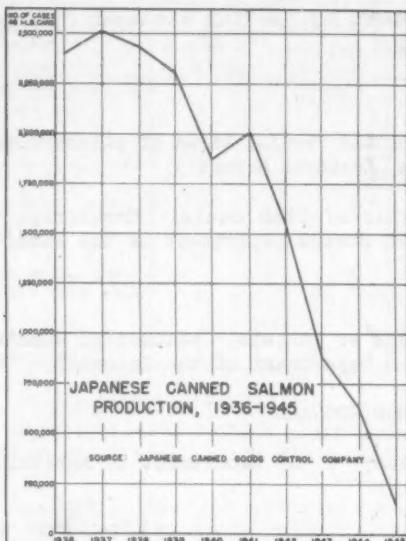
TITUS, HARRY W.; HAMMOND, JOHN C.; and WHITSON, DONALD

1943. Wartime feed mixtures for chickens. U. S. Department of Agriculture
Circ. AWI-48 pp-6.

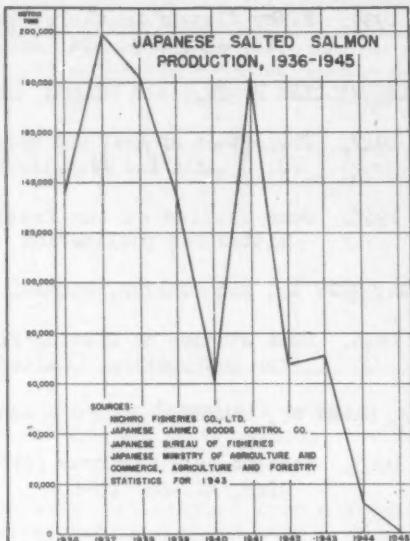


THE JAPANESE SALMON INDUSTRY*

The salmon industry was, at one time, of great importance to the economy of Japan. The Japanese salmon industry reached its peak in 1937 with a total output of canned salmon amounting to about 2,500,000 cases^{1/}, valued at approximately 40,000,000 yen. In that same year the production of salted salmon was nearly 200,000 metric tons (Graphs 1 and 2). From 1937 until the outbreak of naval warfare in the Pacific prior to the 1942 season, Japan ranked second only to the United States in the production of processed salmon. About 87 percent of the exported canned salmon was sent to Great Britain, four percent to France, and most of the remainder to other European countries.



Graph 1



Graph 2

At the present time Hokkaido is the principal source of the greatly reduced salmon catch. Prior to 1945, the waters around Kamchatka, Sakhalin, and the northern Kuril Islands provided practically all of the salmon used for canning and salting (see Plates 1 and 2, pages 10 and 11).

Recently, because of the shortage of foodstuffs in Japan, and because Japan has been cut off from foreign trade, a marked increase in domestic consumption of canned salmon has taken place.

Because the Japanese floating canneries were sunk during the recent hostilities, and because Allied naval action disrupted communications with the canneries

*This article is taken from Natural Resources Section Report No. 31, which was based on information gathered and compiled by Captain Verne W. Broadbent of that Section, General Headquarters, Supreme Commander for the Allied Powers, Tokyo.

1/One case - 48 pounds or 21.8 kilograms net weight.

in Kamchatka, Japanese salmon production has shown an enormous decrease since 1941 (Graphs 1 and 2, page 8). It is, therefore, necessary to base the statements in this report on conditions as they existed prior to 1942. Production data were obtained from many sources. Where discrepancies occurred, the most realistic figures were used.

Inasmuch as most of the Japanese salmon industry was centered in waters controlled by another nation, the industry was subject to numerous international agreements.

In 1875, when the treaty which provided for the exchange of Sakhalin for the Kurils was signed by Russia and Japan, the stipulation was made that Japanese vessels were to have the same privileges in the Okhotsk Sea as were the Russians.

As a result of the Portsmouth Treaty following the Russo-Japanese War in 1905, southern Sakhalin (Karafuto) was ceded to Japan. Since that time a considerable amount of salmon fishing has been done by the Japanese in this territory. The Russian Government, at the same time, also conceded to Japan the right to fish along the Russian coastline in the Okhotsk, Bering, and Japan Seas. In 1907, the Russo-Japanese Fishery Pact was made to extend for a term of 12 years. This pact was drawn purposely to show in detail Japanese rights in fishing in these Russian territories.

In 1917, because of the downfall of the Romanoff Government in Russia, it was necessary for Japan to enter into an agreement with the Tomsk Government to maintain the existing position of Japan's fishery rights.

From 1920 to 1925 the Japanese placed all their fishery concessions under the protection of the Imperial Japanese Army. This was done following the Nicoloivsky Affair, when all Japanese landing stations and canneries were destroyed by Russian partisans.

The Japanese found it necessary to enter into an agreement with the U.S.S.R. in 1928 after the whole of eastern Russia was taken under the control of the Soviet Government. The agreement gave Japan the right to fish on the entire coast of the far-eastern Soviet territory, except for a few specified ports.

Until 1928, Japanese fishing concerns had occupied 80 percent or more of the fishing grounds in eastern Russia. Between 1928 and 1931 Soviet interests practically reversed this situation. This was done by the State enterprise taking over the leases of the Japanese as they expired.

On April 2, 1939, a temporary agreement was signed which provided that the Fishery Convention of 1928 remain in force until the end of 1939.

At this time the Soviets established the principle that, even though the Portsmouth Treaty in 1905 had given Japan a right to fish in Russian waters, the Soviet Government still had the power to determine where the Japanese could fish and to make the terms for leasing these territories.

In January 1940, another provisional agreement was concluded. During the 1940 season, 142 Japanese vessels operated in Soviet waters, catching 332,000 metric tons of fish. Almost 20,000 men were employed.



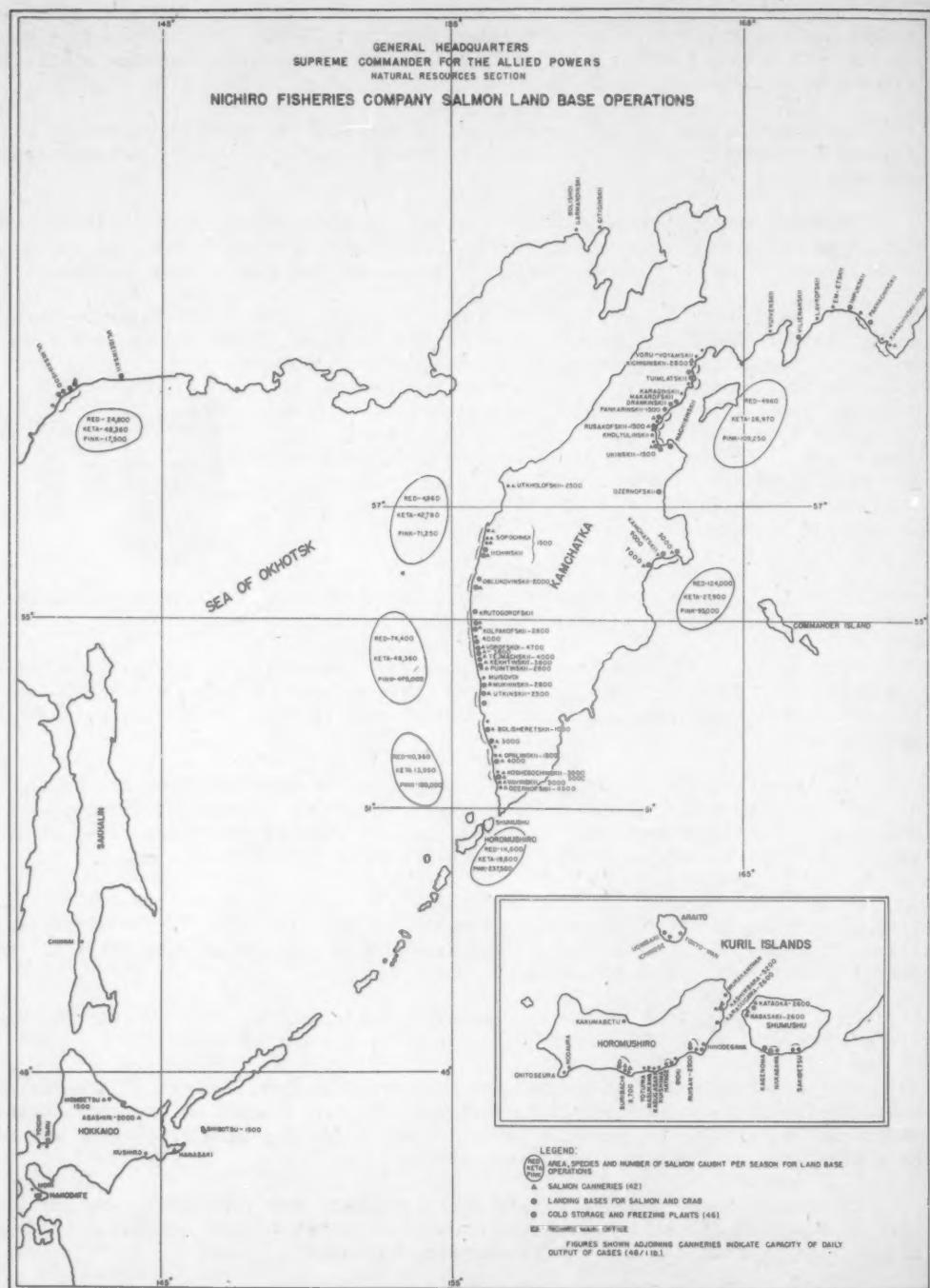


PLATE I

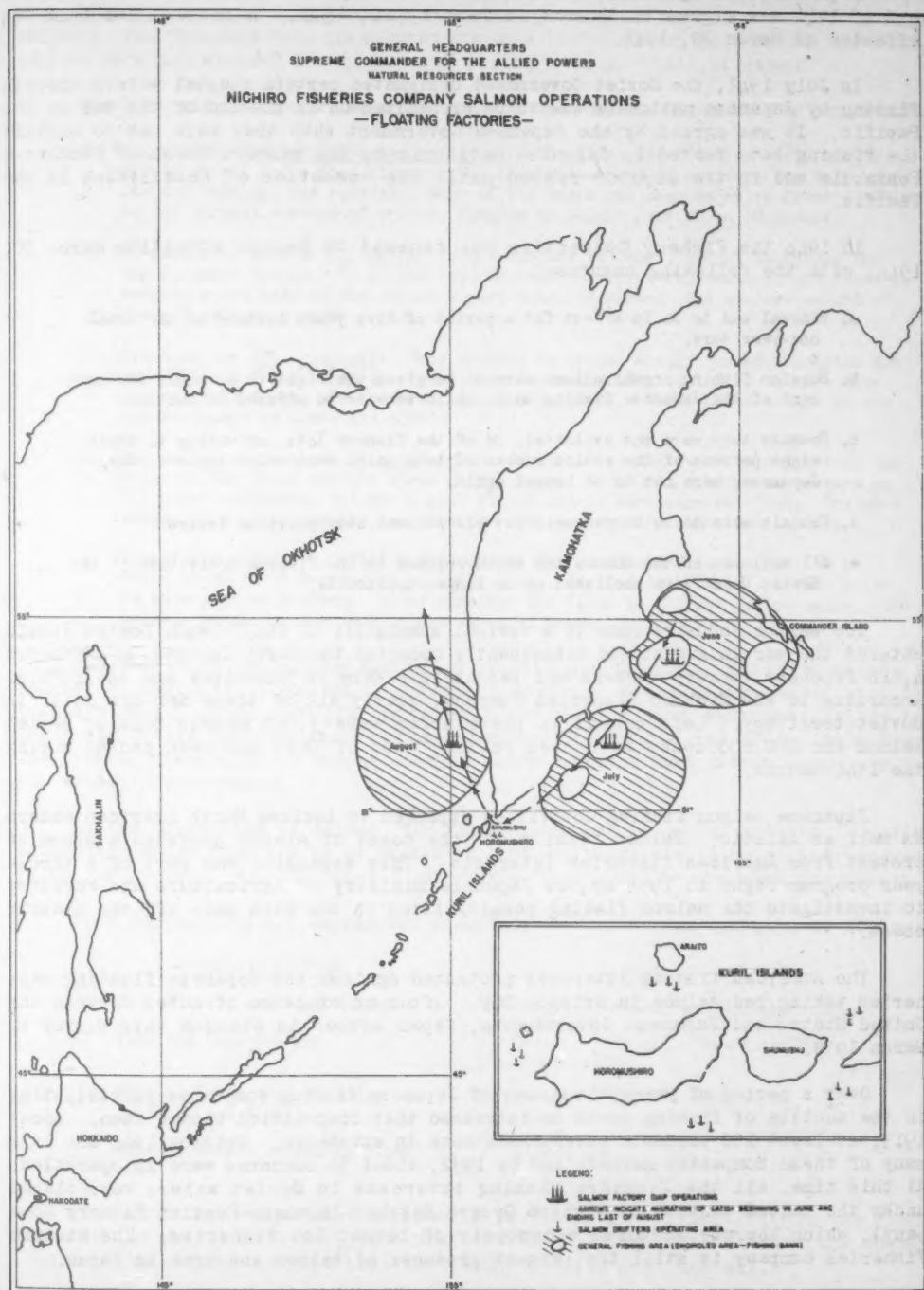


PLATE 2

A provisional agreement to extend the Fishery Convention of 1928 until the end of 1941 was signed at Moscow on January 20, 1941. A renewal for 1942 was effected on March 20, 1941.

In July 1941, the Soviet Government designated certain coastal waters wherein fishing by Japanese nationals was to be prohibited until the end of the war in the Pacific. It was agreed by the Japanese Government that they were not to exploit the fishing lots rented by Japanese nationals on the eastern coast of Kamchatka Peninsula and in the Olyutor region until the cessation of hostilities in the Pacific.

In 1944 the Fishery Convention was renewed to become effective March 30, 1944, with the following changes:

- a. Renewal was to be in effect for a period of five years instead of the usual one-year term.
- b. Russian fishing organizations were to be given the right to purchase ten percent of the Japanese fishing lots, which were to be offered at auction.
- c. Because they were not exploited, 24 of the fishery lots, amounting to about eight percent of the entire number of lots which were under lease by the Japanese, were not to be leased again.
- d. Rentals were to be increased about six percent over previous leases.
- e. All articles of the Convention which related to the fishing activities of the Soviet Union were abolished as no longer applicable.

The salmon industry came to a virtual standstill in 1945. When Soviet Russia entered the war in August and subsequently occupied the Kuril Islands, an estimated 4,500 Japanese cannery workers and technicians were in Kamchatka and the Kurils. According to the Nichiro Fisheries Company, nearly all of these men are still in Soviet territory. Left behind in these areas were 3,000 metric tons of salted salmon and 260,000 cases of canned salmon; most of this had been packed during the 1944 season.

Japanese salmon fishing activities expanded to include North American waters as well as Asiatic. Salmon fishing off the coast of Alaska provoked a storm of protest from American fisheries interests. This expansion was part of a three-year program begun in 1936 by the Japanese Ministry of Agriculture and Forestry to investigate the salmon fishing possibilities on the high seas off the Alaskan coast.

The American fishing interests protested against the Japanese floating canneries taking red salmon in Bristol Bay. After an exchange of notes between the United States and Japanese Governments, Japan agreed to abandon this survey in March 1938.

Over a period of years, the number of Japanese fishing companies participating in the auction of fishing areas so increased that competition became keen. About 1915, at least 100 separate enterprises were in existence. Between 1915 and 1932 many of these companies merged, and by 1932, about 30 concerns were in operation. At this time, all the Japanese fishing interests in Soviet waters were placed under the united control of Nichiro Gyogyo Kaisha (Japanese-Russian Fishery Company), which thereby acquired a monopoly of leased lot fisheries. The Nichiro Fisheries Company is still the largest producer of salmon and crab in Japan.

The canned goods that were packed in the Russian territory, either at Japanese land stations or by floating canneries, were shipped directly to foreign markets. The proceeds from these products were listed under the head of "Revenue," and so were not entered in the returns of the foreign trade of Japan.

The following five species of salmon are used by the Japanese for processing:

- a. King salmon (Oncorhynchus tschawytscha): The flesh is of medium texture with plenty of oil and a fine flavor. The king salmon was at one time the most popular for canning, but recently, much of the catch has been marketed frozen. This is the largest species of salmon, ranging in weight from 20 to 80 pounds.
- b. Red salmon or sockeye (O. nerka): This species is caught around Kamchatka and the northern Kurils. It is the most desirable species for canning, and formerly made up about half of the salmon export trade of Japan. The average weight of the red salmon is eight pounds.
- c. Silver salmon (O. kisutch): This species is caught mostly around Kamchatka and the northern Kuril Islands. The silver salmon is of a less firm texture than the red salmon, and the meat is light red in color. The average weight of the silver salmon is about six pounds.
- d. Pink salmon or humpback (O. gorbuscha): This species derives its names from the color of the flesh and the shape of the fish. It is not so firm in texture as the other varieties, but has a good flavor and is an economical food. The pink salmon is a small species, weighing on the average only about four pounds.
- e. Chum or dog salmon (O. keta): The meat of the chum salmon is not so firm as other species but because of its nice color, distinctive flavor, and low price, it is a popular product. After canning, the flesh is a light yellow color. The average weight of the chum salmon is eight pounds.

The home base for salmon and trout fishing operations in northern waters is located at Hakodate, Hokkaido. Transport vessels, after being loaded with the season's supply of foodstuffs, materials for repair, and equipment sailed for their respective landing stations or canneries toward the end of May each year. The fishing fleets put to sea as soon as shore stations were placed in repair for the season's operations.

In the processing of salmon, the first operation is one of grading. Grading determines which fish are to be packed in cans, and which are to be salted, smoked, dried, or frozen. The freshest fish of the best quality are used for canning.

Fish for canning are segregated according to variety and quality, as follows:

<u>Variety of Fish</u>	<u>Grades</u>
Red, Silver, and King Salmon	Fancy, Standard, and Non-exportable
Pink and Chum Salmon	Choice, Standard, Passed and Non-exportable
Titbits (neck meat of Red, Silver, and King)	"A" grade and Non-exportable
Sliced, smoked salmon in olive oil	Passed grade

Fish which are rejected for canning purposes are either sold on the fresh fish markets or put into reduction plants with the offal from the canning operations. This residue is made into fertilizer or fish meal and oil.

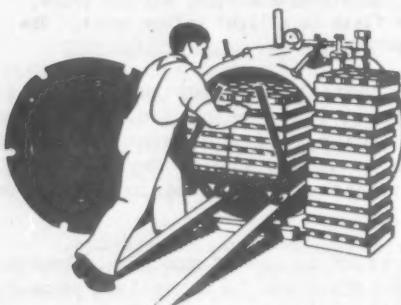
Briefly, the canning process is as follows: Fish are unloaded from the boat onto the cannery wharf; after sorting, they are conveyed into the plant, cleaned, cut to size, and packed in cans; the cans are exhausted and sealed, or vacuum sealed without the exhaust cook; the cans are then given the final sterilizing cook in pressure retorts.

Formerly it was thought that, in order to improve the pack, fish should stand 12 to 24 hours after being landed. Often fish were held too long and spoilage occurred. Hence this practice has been discontinued.

Most of the land and floating canneries are equipped with cutting machines commonly known as "guillotines" and "iron chinks." These machines cut off the heads, fins, and tails, split the bellies, and remove the viscera and slime. Other plants are equipped with somewhat different sliming machines. The fish are then cleaned and cut into lengths, depending on the size of the can.

Most of the cans are filled by machine, but it has been proved that hand-packing results in a far superior product. After the cans are packed and the weights are checked, the cans are either run through an exhaust box and then sealed or sealed by a vacuum-sealing machine without the exhaust cook. In plants which use an exhaust box, cans are first run through a clincher which puts the lids on loosely. The exhaust process takes 15 to 30 minutes at a temperature of 210° F.

After the cans are run through a washer, they are cooked in retorts to sterilize the contents. The retorting is done in large steel, horizontal, cylindrical tanks capable of holding from 45 to 90 cases of one-pound cans each or twice that amount of half-pound cans. The one-pound tins which have been given an exhaust cook are cooked under steam pressure for 80 minutes at a temperature of 240° F. Half-pound cans are cooked for 60 minutes; quarter-pound cans for 45 minutes. Vacuum-sealed cans are retorted for an additional 10-minute period.



process. Following the cooling, cans are labelled and cased, and are ready for shipment.

At one time, the Japanese Canners' Association was actively engaged in the inspection of canned salmon. The inspection covered the color of meat, amount of skin, oil, liquid and salt, texture, odor, and taste of the fish, amount of vacuum, head space, weight, and thoroughness of cook. Lately, little inspection, if any, has been made. In many cases, it has been found that during the cooking process the temperature was allowed to drop one or two degrees below the prescribed minimum with no correction or re-cook being made.

All species of salmon may be salted or smoked, but the most desirable varieties for these purposes are the pink and chum salmon.

Salted salmon comes in two grades. The excellent, or first grade, is called "aramaki," and the ordinary grade is known as "kairyo." The difference between

the two grades is determined by the quality and condition of the fish and also by the process of preparation.

First grade salmon are salted and packed individually in boxes. As soon as the fish are caught, they are cleaned thoroughly and washed. They are then drained of all water. After salt has been put in the gill slits and bellies, the fish are placed in wooden boxes of about 15 to 20 fish each. The boxes are kept in cold storage until the fish are to be used.

Ordinary grade salted salmon is prepared either by salting in tanks or by mass salting. In the tank method, the fish are placed in tanks of either wood or concrete after they have been cleaned and drained. They are salted thoroughly by layers. The top layer is heavily salted, and the tank is covered with canvas. After seven days the fish are put in wooden boxes for shipment. In the mass method, fish are piled on mats and salted heavily. After being kept covered with salt and protected by canvas for a period of 20 days, the fish are packed in wooden boxes.

Large quantities of salt are required in the preparation and packing of salted salmon. The amounts of salt used, expressed as a percentage of the weight of the raw fish, are as follows:

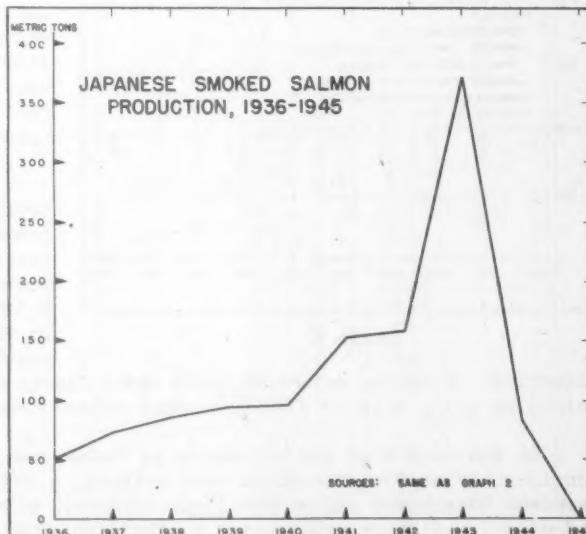
Type of Salting	Percentage of Weight
Aramaki	18 to 20
Tank	20
Mass	32

Additional salt in the amount of 8 to 16 percent of the weight of the fish is needed for repacking in boxes after the initial process.

Salted salmon may be kept for as long as one year without spoiling if stored in a cool place.

The salted fish are soaked in fresh water for one or two days in order to remove some of the salt. They are then cut lengthwise, separating the backs from the bellies. The sections are dried in the shade for one day; they are then hung in the smokehouse by the tail and subjected to the smoke of some type of hardwood, such as white oak, along with sawdust. The sections are smoked for about 10 hours daily for 18 to 21 days consecutively at temperatures ranging from 60° to 80° F.

Nichiro Fisheries Company has one salmon-smoking factory which is in condition for immediate operation. This plant is located at Oiawakecho, Kamiise Gun,



Graph 3

Hokkaido. The six buildings of the factory have a floor space of 14,565 square feet and contain 20 smoking chambers. The capacity of this factory is 60,000 smoked red salmon per month (Graph 3, page 15).

Methods for preserving salmon and other marine products by means of cold storage and freezing have undergone many changes since 1918, when Mr. Ihei Kuzuhara first started a freezing business using an air sharp-freezing process. In 1923, the Hayashikane Company adopted the Ottesen quick-freezing process, which at that time was considered the best method for fish freezing.

Some varieties of fish are more suitable for freezing than others, salmon being one of the best. The most desirable species are red and pink salmon. Extensive developments have been made in Kamchatka and Hokkaido, both at land stations and on fishing and factory vessels, toward better methods of freezing.

Frozen salmon were first shipped to England and other European countries headed and gutted, but recently the producers have adopted methods of freezing fillets or steaks for export. Removing the inedible portions of the fish reduces shipping costs.

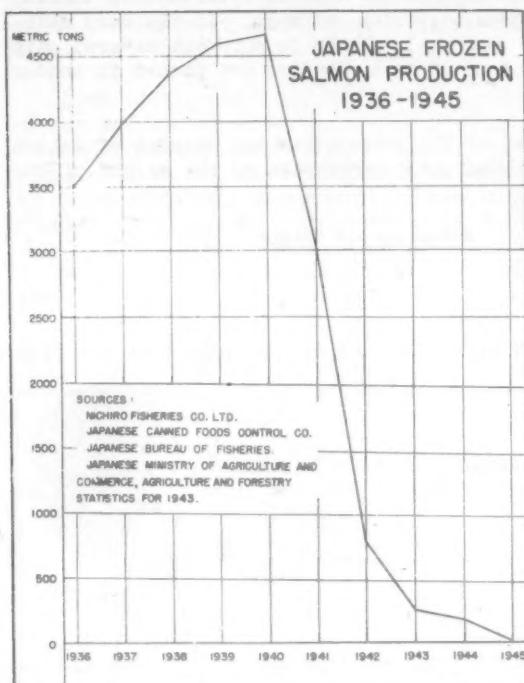
Nichiro Fisheries Company, which controls the salmon industry, operated nine freezing plants and 37 cold-storage plants in Kamchatka and the northern Kuril Islands. Most of the factory ships were also equipped with quick-freezing plants (Graph 4).

Since 1927, the Japanese have developed the operation of floating factory ships to such an extent that the industry has become of great importance to the fisheries of Japan. Until 1927, salmon were caught close to the coast as they approached the mouths of rivers on their spawning migration.

Floating canneries, with their fleets of fishing vessels, changed this method by being able to fish in deeper water offshore.

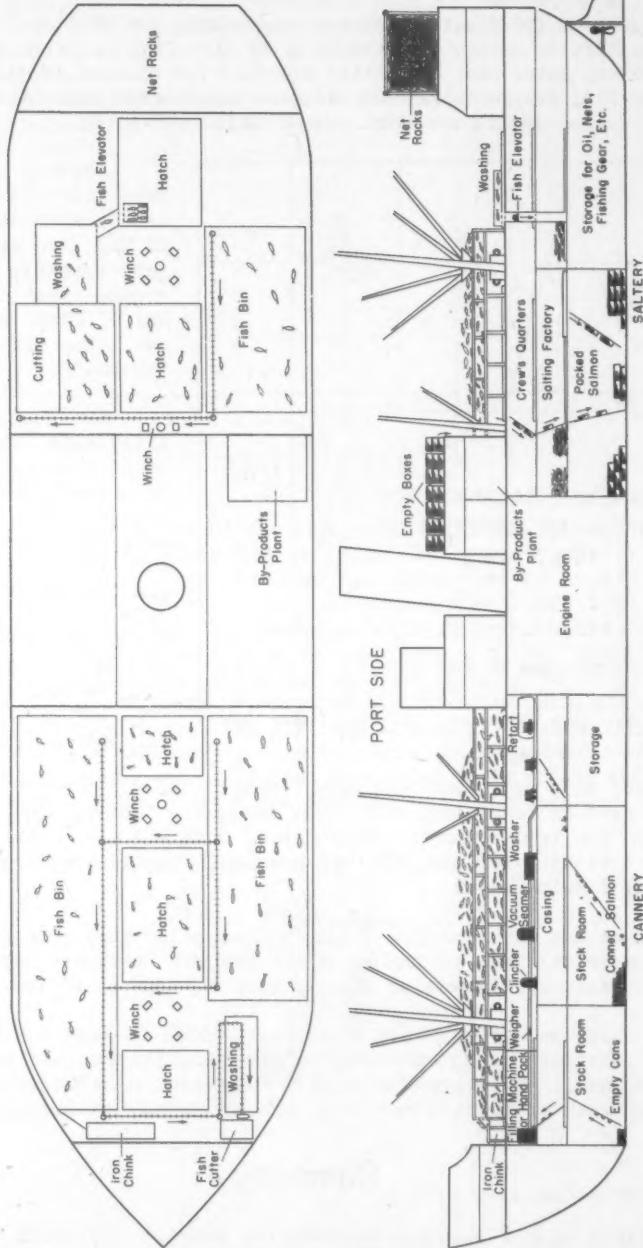
At the outset of the operation of factory ships, coastal fishermen suffered considerably because the ships were catching a large majority of the salmon. The Japanese Government intervened, and in 1935, virtual control over both coastal and offshore fishing was granted to the Nichiro Fisheries Company. Japanese regulations prohibited the operation of salmon mother ships south of 51 degrees North Latitude to protect the coastal fisheries of Hokkaido, Karafuto, and the Kuril Islands.

In northern waters, the floating salmon canneries operating outside the three-mile limit were in direct competition with both Japanese and Soviet shore can-



Graph 4

SKETCH OF FLOATING SALMON FACTORY



DRAWING ADAPTED FROM ILLUSTRATION FURNISHED BY NICHIBO FISHERIES CO

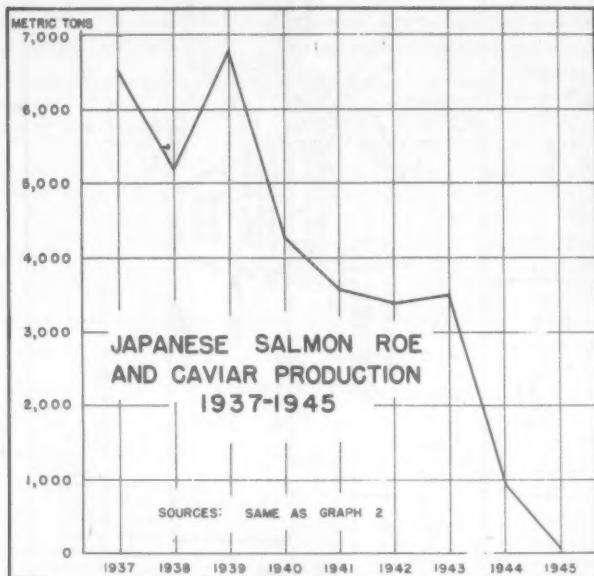
PLATE 3

CANNERY

SALTERY

neries on the leased lots. It has been said that the Japanese used the threat of engaging more factory ships to compete with Russian shore stations in order to secure better terms in the negotiations for renewal of fishing lot privileges.

At the peak of its floating cannery operations, the Nichiro Fisheries Company owned nine factory or mother ships ranging in size from 1,500 to 6,200 gross tons each. The factory ships were completely equipped for canning, salting, and freezing (Plate 3, page 17). A byproducts plant was also installed on each factory ship for the processing of salmon eggs, roe, and salmon caviar (Graph 5).



Graph 5

The mother ship provided each small craft with 100 to 130 drift gill nets of about 180 feet in length and with other necessary fishing equipment, fuel oil, and supplies. The boat captains were issued orders as to where to fish by the factory ship's fishing foreman, who had previously made investigations as to the most promising fishing areas.

When the salmon were brought to the factory ship, they were first sorted for either canning or salting, according to species and freshness, and dispatched to the cannery or saltery. Processing methods were the same as at the shore stations.

Factory ships were equipped with radio in order to keep the main office informed as to location, daily catches, weather conditions, and needs for repair parts and supplies. The ships also made arrangements with Hakodate for transhipment of stocks when production was large enough to warrant shipment.

Summary

The Japanese salmon industry reached its peak in 1937 with a production of 2,500,000 cases of canned salmon and 200,000 metric tons of salted salmon. Be-

Factory ships left Hakodate with complete equipment each season about the middle of May, to arrive outside of territorial waters off the Kamchatka coast near the end of May. Here they anchored to await the arrival of the fishing boats.

Each factory ship was supplied with the catches of 50 or 60 fishing craft of 30 to 50 gross tons each. These vessels sailed in fleets from Hakodate and other bases to arrive at the fishing grounds and begin operations the first of June. Fishing continued until about the end of August, depending upon the run of fish each season. The location of the fishing grounds is shown in Plate 2 (page 11).

cause of wartime conditions, the output of this industry had shrunk to 100,000 cases of canned salmon and 600 metric tons of salted salmon in 1945.

Most of the Japanese salmon catch was made in Kamchatka and the northern Kuril Islands. About 20,000 Japanese were employed in the land and floating canneries and in fishing activities.

The bulk of the Japanese canned salmon production was exported prior to 1940; an estimated 87 percent of the exports went to Great Britain.



SURF CLAM

The surf clam is one of the commonest shellfish of the Middle Atlantic Coast. It has supported an important fishery only during the past two years, when a new industry was developed to supply wartime needs for canned products. Principal commercial operations are now carried on along the southern shore of Long Island, where the clams are taken in dredges a half mile to a mile from shore. Some are sold fresh, part are canned locally, but most are shipped to Maine for canning. With about 25 boats fishing for surf clams in 1945, average daily production was reported as about 2,000 bushels. The clams live on exposed coasts from Labrador to Cape Hatteras, burying themselves in the bottom to a depth of several inches. They spawn in the spring and throughout the summer. About 5 years are required to reach a length of $4\frac{1}{2}$ inches.



SECTIONAL REVIEWS

Middle Atlantic

NEW JERSEY: Both production and market values of fishery products landed in most areas in New Jersey during May showed slight decreases from normal, according to the Service's Fishery Marketing Specialist in New Jersey. Inclement weather was chiefly responsible for the decline in production.

Shad catches, particularly by pound nets, were considerably lighter than those of May 1945. The lighter shad runs were accompanied by the appearance of large schools of menhaden in New Jersey waters, a usual occurrence.

On the few days that weather conditions were favorable for intensive fishing operations, mackerel landings were more than normally heavy. It was reported that an unusually large quantity of these landings found its way to freezers.

Herring runs were so heavy during the month that this species very nearly became a drug on the market.

Scup were taken in comparatively large quantities late in May, with the result that market prices declined to a very low level.

Catches of whiting were heavy in both the pound net and otter trawl fisheries. Dealers were compelled to limit their purchases from otter trawlers to the amount they could afford to handle profitably.

Despite the increase in the number of fishing craft that have entered the commercial fishing industry in New Jersey during the past few months, it is doubtful if the total annual yield of fresh fish during this year will greatly surpass that of 1945.



Chesapeake

VIRGINIA: The Virginia Commission of Fisheries, which ordinarily has jurisdiction over all tidal waters of the State, has assigned Back Bay to the Commission of Game and Inland Fisheries, which is primarily concerned with sport fishing and hunting, the Service's Fishery Marketing Specialist in Virginia reports. This latter Commission has ruled that there shall be an open season for haul-seining in Back Bay from November 1 to March 31, that the maximum length of seines shall be 250 yards, and that the mesh shall not be "less nor greater than 3 inches." As this Commission, in its conservation activities, needs some of the fish for breeding, principally the large-mouth bass, it allows haul-seiners to retain them to sell for such purposes. All dead or damaged fish



must be discarded. The Commission pays 20 cents per pound for the bass. Live boxes measuring about 3 by 12 feet and accommodating about 400 fish are used to hold catches until the State collects them.

It is reported that the Bay has a rich supply of snapping turtles, and an effort is being made by local fishermen to find a market for them. Bay carp are plentiful and said to be of superior flavor to river carp. At any rate, they have been bringing a consistently higher price. Facilities have been provided to ship these fish alive, and carp pounds made of boards driven into the mud keep the fish in readiness for the aerated tank-trucks. The production of carp in 1945 has been estimated at 200,000 pounds, worth between 10 and 15 thousand dollars to the fishermen. Eels are abundant, but are not fished to any extent. Catfish also are in large quantity, as are white and yellow perch. Hard-shell crabs are present but not taken.

It is reported that an alewife cannery has been proposed for the James River, as alewives are caught in sufficient numbers in the river to supply such a cannery. Catches of alewives in the James have heretofore been shipped either to the fresh market, for what they would bring, or used as bait for catfish pots.



South Atlantic

GEORGIA: The recent oyster season in Georgia continued the general decline in production that has been prevalent during the past few years, according to the Service's Fishery Marketing Specialist in the South Atlantic States. Every year, according to available information, oysters have been getting less plentiful in this coastal State, where, with proper control and conservation, the sounds and rivers should have plentiful supplies. Since 90 percent of all oyster beds in the State are privately leased, the burden rests on individual lessees to furnish labor and shells for replanting. It is apparent that they will need aid from the State authorities if they wish to revive the producing areas.

Indications are that with proper supervision, protection, and planting, Georgia's oyster beds could again thrive within four or five years.

State laws forbid shrimp dragging in rivers at all times during the year, and in the sounds from December 15 to April 15, inclusive, and June 15 to July 15, inclusive.

Shrimp catches have run lower than average for the past two months, even though production is normally low in April and May. Vessels have averaged from 100 to 200 pounds per trip, whereas the normal trip should average approximately 300 pounds. The size generally marketed counts 31-35 shrimp per pound.

Several new vessels have been added to the fleets in the Brunswick and Thunderbolt areas, but optimism regarding the coming season is lacking due to the large number of small shrimp that was caught during the winter and early spring fishing.



TECHNOLOGICAL RESEARCH IN SERVICE LABORATORIES

MAY 1946

Mayaguez, Puerto Rico

Recommendations have been given to both dealers and primary producers for better handling practices in the marketing of fishery products. The poor financial condition of the Puerto Rican fishermen is a limiting factor in the introduction of refrigeration practices in handling their catch. The high cost of ice is a restrictive feature in the widespread use of ice for refrigeration of the catch.



The Agricultural Company, organized to promote fishing and agriculture in Puerto Rico, is shifting its fishery operations from the east coast of the Island to the west coast, particularly to Mona Island. This shift was made necessary by the failure of fishery programs in eastern waters.



Boston, Mass.

Two series of experiments were made using an antioxidant made from a cereal as a means of extending the storage of raw sardines. There was no significant preserving effect which could be attributed to the antioxidant.

Nine experimental packs of sardines were prepared in which three different essential oil preparations were used. The use of California pilchard oil was found unsatisfactory because of the excessively fishy odor.

An experiment is being conducted on the use of antioxidants dispersed in cottonseed oil and in Irish moss gel on the keeping quality of frozen mackerel fillets.



College Park, Md.

An examination was made of oysters on the half-shell which had been frozen and held in storage for three months. They were judged to be inedible by the taste panel. Of four protective coatings used, the oysters which had been water-glazed and wrapped in moisture-vapor proof cellophane had the best appearance.

Several samples of packaging materials not previously available are now undergoing tests at the laboratory. These include the new FF type of pliofilm for frozen food packaging and a new plastic film, also polyethylene film and aluminum foil of 0.001 inch thickness. A sample of a "window" type container for fish fillets also was brought to the laboratory.

Samples of canned Peruvian fish were examined. These included smoked sprats, rockfish, and fish cakes.

Preliminary investigations have been started on the use of unpopular species of fresh-water fish for pet food.

Studies are being made on the thiochrome method for determining thiamine by the use of light absorption, employing the Beckman spectrophotometer.

The studies of fish oils for protective coatings are being continued. An apparatus for blowing a number of oil samples simultaneously has been constructed.

Work has been started on a new method of preparing glyceride gallate ester antioxidants.

Evidence to date indicates that the incorporation of high levels of DDT in fish meal fed to chickens has a deleterious effect on egg production.

Further work is in progress on an 8-hour test for coliform bacteria in seafood. This is a continuation of a project started before the war.

A complete review of the problem of poisoning due to the ingestion of fish has been made and will be published shortly.

Bacteriological studies were made of "raw" and "processed" caviar. The results indicated that pasteurization is an effective method of improving the bacteriological quality of the product.

Bacterial counts, hydrogen-ion concentration and organoleptic determinations are being made on oysters which have been given various dip treatments.

Samples of various frozen foods were examined for the presence of coliform bacteria and enterococci. The latter organisms were found to be present in most of the samples examined.

Further field studies with regard to sanitation have been made in fishing villages of the Chesapeake area. Progress in sanitation is becoming apparent in some of these places.

Work is continuing on the ecological study and significance of the enterococci with reference to pollution.

A survey of the literature dealing with air disinfection has been completed.



Ketchikan, Alaska

Sixty-five recipes for the Alaska Cook Book have been reviewed and tested. About 25 of these have been approved for final acceptance.

Studies of the filleting characteristics of Alaska rockfish have been continued.

A trip was made to investigate clam, shrimp, and crab resources on Northwest Gravina Island and in Cholmondoley Sound.



Seattle, Wash.

Tests are in progress to determine the keeping quality of smoked silver salmon packed in oil without processing.

After nine months in storage at 3° F., baked pilchards that had been frozen in blocks and then glazed were slightly rancid as compared with pilchards that had been vacuum packed in tin.

Baked sablefish that had been held in storage for nine months at 3° F. as cellophane-wrapped steaks was rancid in flavor when compared with fish which had been vacuum packed in tin. However, the latter had a flat flavor.

A molding device has been perfected for producing blocks and bars of frozen fillets. In continuous operation, the machine produces blocks of uniform weight, the variation being not over one-half ounce.

It has been found that ground grayfish livers, stored at room temperature in pint jars with a free space of from one-half to one inch and with the jar lid secured by a rubber ring, show no measurable loss of vitamin A in a period of one month.



FRESH AND FROZEN FISH

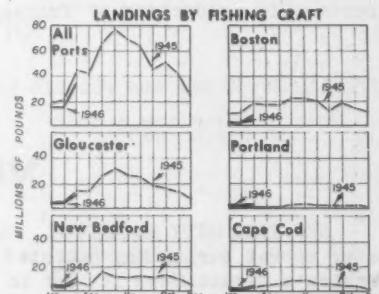
New-England

PRODUCTION: Production of all the major New England ports increased during May, according to the Service's Market News Office at Boston. The causes for this increase were: Normal gain due to seasonal abundance of important species such as haddock and rosefish, resumption of the small boat fishery for whiting, the appearance of the mackerel schools in local waters, and the return to production of a majority of the large otter trawlers which had been tied up from December 27, 1945 to May 23. Previous to April, all the major New England ports were deluged with cod, which had to compete in the market with unusually large imports of this species. At Gloucester, in May, the large fleet of draggers found abundant supplies of rosefish and shifted their fishing from cod and haddock to rosefish. Total landings at Boston increased over 100 percent during the last week of May compared to preceding weeks due to the first arrivals of the large otter trawlers. It is expected that landings will rapidly return to normal at Boston when the 42 large trawlers reach their maximum production.

The end of May found Boston, Gloucester, and New Bedford with greatly expanded fishing fleets. Shore facilities at Gloucester and New Bedford have been nearly tripled since prewar days. With shortages in many foods other than fishery products, it is considered probable that the trade can absorb the production of the expanded fleets in our major ports.

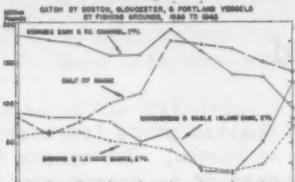
One of the most eventful occurrences was the suspension of price ceilings on many fishery items on May 20th. Prices during the last two weeks of the month averaged close to one and one-half cents per pound higher for important species at Boston and New Bedford, while Gloucester prices held close to the old summer ceilings. Prices paid for scallops doubled over the former ceiling but reportedly were not more than those paid previously on the black market.

LANDINGS DURING MARCH: Landings by fishing craft during March at Boston, Gloucester, New Bedford, Portland, and ports on Cape Cod totaled 34,081,000 pounds--a decrease of 24 percent in quantity landed as compared with March 1945, according to the Service's Current Fishery Statistics No. 271. Total landings during the first 3 months of 1946 amounted to 63,317,000 pounds, compared with 84,892,000 pounds landed during the corresponding period of 1945. Because of the price controversy existing between vessel owners and fishermen, only 12.9 million pounds were landed at Boston during the 3-month period, compared with 37.9 million pounds for these months in 1945.



LANDINGS FOR 1945: Landings of fishery products at Boston, Gloucester, and Portland during 1945 by fishing vessels of over 5 net tons totaled 423,615,000 pounds, according to the Service's Current Fishery Statistics No. 264, entitled

"New England Landings, 1945, by Gear and Area." This was an increase of 16 percent over the landings at these ports during 1944. Of the total, 37 percent was



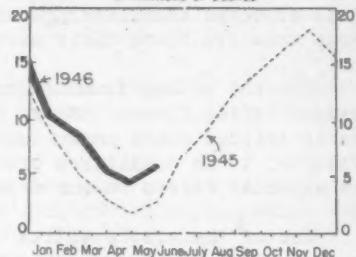
during recent years are evident in Banquereau and Sable Island Banks, etc., and Browns and LaHave Banks, etc., while other areas continued to decline from the 1941 peak.

COLD-STORAGE: Holdings of fishery products in 13 cold-storage plants in Maine and Massachusetts on June 1 showed an increase of 38 percent over inventories on May 1 and were double the quantities held on June 1, 1945, according to the Service's Market News Office at Boston.

The cold-storage plants in the Maine-Massachusetts area have an estimated capacity of 40 million pounds. On June 1, stocks were only about 29 percent of this potential capacity. Individual items held in storage showed that nearly 54 percent of the increase during May consisted of sea herring and squid. These items, as a rule, do not compete with the most important items such as cod, haddock, and rosefish; instead they are usually frozen for bait or for canning. Holdings of cod fillets, which prior to this month were rapidly increasing, declined 22 percent, while stocks of haddock and rosefish fillets increased slightly.

It is difficult to make comparisons of cold-storage holdings of recent years, owing mainly to the effect of the war upon production, and a lack of complete records for earlier years. It appears evident, however, that holdings were higher on June 1 this year than they were on that date in any prewar year, because of the increased acceptance by the public of frozen products and a corresponding increase in production of frozen fish.

COLD STORAGE HOLDINGS-BOSTON
in millions of pounds



Middle Atlantic

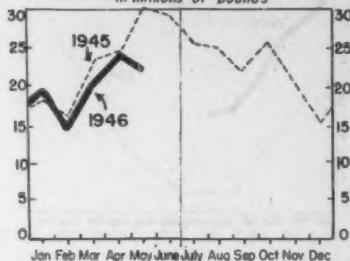
NEW YORK CITY RECEIPTS: Fish and shellfish received in the New York salt-water market during May amounted to more than 22 million pounds, according to the Service's Market News Office in that city. This represented a decrease of approximately 2 million pounds compared with April and was 9,700,000 pounds less than May 1945. May was the month of highest production in 1945.

Of the salt-water fish receipts, the species arriving in greatest abundance during May were flounder, cod, haddock, and mackerel, while clams, soft shell

crabs, lobsters, scallops and squid were the leading shellfish items. Oysters disappeared from the market, and the shad run declined during the month, while halibut and salmon from the West Coast, bluefish, weakfish, swellfish from local waters, and soft crabs from the Chesapeake area made their appearance.

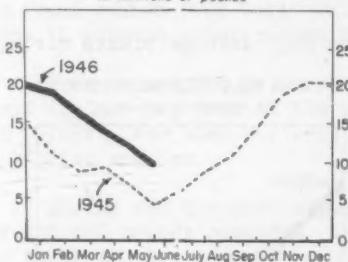
With the exception of the first week of the month and the few days during the latter part of the month affected by the railroad labor dispute, the market was active. Following suspension of OPA control on May 20, prices on groundfish increased slightly, but on several days haddock, cod, and flounder could be purchased for prices below the former ceilings for these species. More stress became placed on quality and size.

NEW YORK CITY RECEIPTS
in millions of pounds



NEW YORK CITY COLD-STORAGE HOLDINGS: Holdings of fishery products in New York cold-storage plants totaled 9,713,000 pounds on June 1, according to the Service's Market News Office in that city. This

COLD STORAGE HOLDINGS - NEW YORK
in millions of pounds



was 1,800,000 pounds below inventories on May 1, but approximately $4\frac{1}{2}$ million pounds higher than June 1, 1945. Holdings of haddock, herring, king whiting, salmon, and weakfish showed an increase during May, but other salt-water species declined. There were increases also in fresh-water stocks of carp and sturgeon, but these were more than offset by withdrawals of chubs, ciscoes, and whitefish.

Heaviest shellfish withdrawals were made from lobster tails and shrimp.

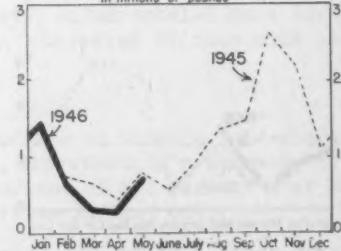


South Atlantic

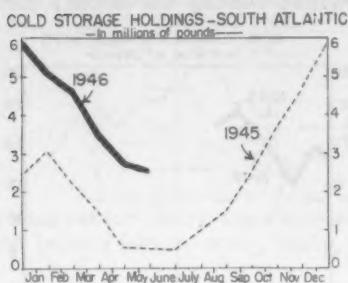
PRODUCTION: Shrimp production during May for Florida and the South Atlantic States amounted to 719,000 pounds (heads off), according to the Service's Market News Office at Jacksonville. Although this represented an increase of 452,300 pounds over April, it was about 6,000 pounds lower than May 1945.

Even though comparative figures for all localities are not available, there is a strong indication that shrimp migrations north have started at an earlier date than last year. Shrimp landings at Mayport and St. Augustine in May were caught this year in water further north than the waters which produced shrimp in May 1945.

SOUTH ATLANTIC SHRIMP RECEIPTS
in millions of pounds



COLD-STORAGE HOLDINGS:



Holdings of fish and shellfish in 5 major cold-storage warehouses in the South Atlantic States amounted to 2,585,000 pounds on June 1, according to the Service's Market News Office at Jacksonville. This was 245,000 pounds less than inventories on May 2, but 2,072,000 pounds greater than June 1, 1945.

Fish stocks decreased 165,000 pounds and shellfish 80,000 pounds during May. The decrease was partially counterbalanced, however, by an increase in holdings of whiting, king whiting, fillets of northern varieties of fish, and croakers. There were only slight increases in stocks of southern varieties.

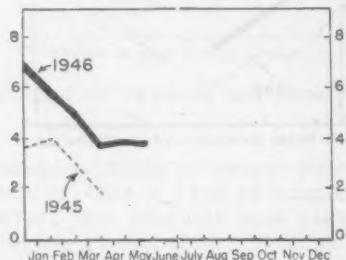


Gulf

COLD-STORAGE: Withdrawals of frozen shrimp from Gulf storage plants during the last week of May were double the quantity withdrawn in any of the previous 5 weeks, according to the Service's Market News Office in New Orleans. There were, however, larger amounts assigned to freezing, so that holdings remained at a level of about $1\frac{3}{4}$ million pounds in the 10 Gulf area warehouses covered by market news records.

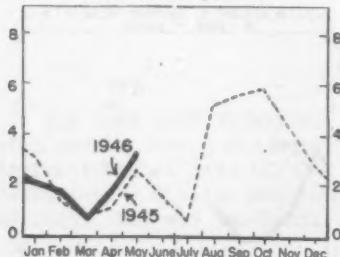
Nine of 28 canning plants operating under the Federal inspection service resumed operations after the suspension of price ceilings.

GULF COLD STORAGE HOLDINGS
in millions of pounds



PRODUCTION: Suspension of price ceilings on May 20 by OPA caused considerable change in the Gulf shrimp industry, according to the Service's Market News Office in New Orleans.

GULF SHRIMP RECEIPTS-
in millions of pounds



Prices released for open bargaining, mounted from 50 to 100 percent higher than the former OPA maximums. Some areas established local ceilings of their own, but this system became disrupted when outside buyers came in with bids higher than those of the local dealers.

It was expected that consumer demand would remain sufficiently strong to sustain the high prices until August, when shrimp would be more plentiful.

Production of shrimp was good for several days following the lifting of the ceilings, but dropped off as May ended, and it was expected that the following

ten weeks would see light production. The season on inside fishing closes in Louisiana on June 28 and remains closed until August 15. (A bill pending in the Louisiana legislature would extend this period slightly, banning fishing from June 10 until the second Monday in August. This bill defines inside waters as all waters extending out to the 3-fathom line.)



Great Lakes

CHICAGO RECEIPTS: Receipts of fresh and frozen fishery products in the Chicago wholesale fish market during May totaled 6,400,000 pounds, an increase of 7 percent over April, but 7 percent less than the May 1945 receipts, according to the Service's local Market News Office. Although total salt-water deliveries were 22 percent below those in May 1945, halibut receipts were 30 percent greater, chiefly due to increased shipments of fresh halibut from British Columbia. Salmon receipts, chiefly fresh salmon from California and Washington, were 14 percent greater than those in May 1945.

Fresh-water fish deliveries were 33 percent less during May than in the previous month and 10 percent less than May 1945. Lake trout led all other species.

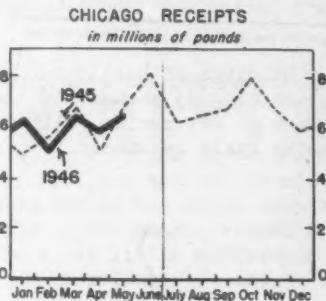
Shrimp was the most important shellfish item during the month with a total of 737,000 pounds received. Deliveries were nearly 200 percent greater than those in April and 94 percent greater than deliveries in May 1945. Fresh shrimp amounted to 40 percent of the shrimp deliveries, while frozen shrimp accounted for the remainder. With the suspension of price control, prices rose far above the suspended ceilings. A gain of 27 percent was noted in lobster receipts from New England.

The latter part of May saw the beginning of shipments of fresh fish from the Western Canadian Provinces. Local deliveries of fish from Lake Erie suffered a sharp decline.

Larger deliveries of frozen fillets from the East Coast and the Maritime Provinces was one of the most noticeable results of the suspension of ceiling prices. This was especially true of rosefish fillets, which totaled more during the latter part of May than in any previous month. Rosefish fillets rank next to halibut and salmon in consumer demand.

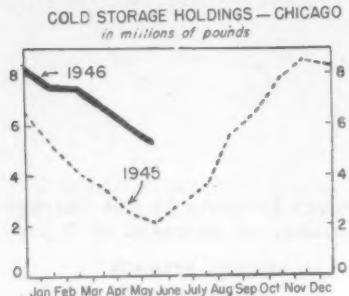
CHICAGO COLD-STORAGE: Holdings of fishery products in Chicago cold-storage warehouses on May 29 amounted to 5,323,000 pounds, representing a decrease of 8 percent compared with holdings on May 2, but an increase of 162 percent over May 31, 1945, according to the Service's Market News Office in that city.

Fresh-water varieties declined 6 percent during the month. Since April, receipts of fresh fish from the Canadian Provinces have been of little consequence,



but it is expected that when these shipments attain their anticipated volume, cold-storage holdings will increase rapidly.

Salt-water items declined 18 percent during May. This was largely due to heavy withdrawals of frozen salmon. Only two carloads of frozen halibut arrived



during the month, which affected the total holdings of this item very little, as it was withdrawn soon after it was deposited in storage. Items showing the greatest decline during the month were salmon, 80 percent; rosefish fillets, 37 percent; cod fillets, 23 percent; and sablefish, 23 percent.

Recently, large arrivals of frozen salt-water fish, which heretofore had been delivered to cold-storage houses, have been delivered directly to retailers.

Holdings of shellfish increased 20 percent during the month, with shrimp representing 85 percent of the total holdings. However, only a very small percentage of May shrimp deliveries found its way into storage. Holdings of spiny lobster tails decreased 50 percent during the month.

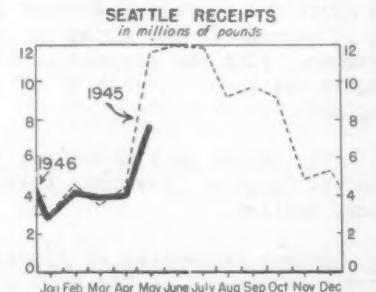


Pacific

SEATTLE RECEIPTS: Nearly 8 million pounds of fresh and frozen fishery products were received at Seattle during May, according to the Service's local Market News Office. This was an increase of 86 percent over April, but 32 percent less than May 1945. Opening of the 1946 halibut season on May 1, together with ideal fishing weather and heavy landings, was responsible for the month's sharp increase.

Fresh halibut landings at Seattle totaled 3,175,000 pounds during May. Additional halibut landings, made by coastwise vessels from Alaska, consisted of 235,000 pounds of frozen and 13,000 pounds of fresh halibut. Also, 61,000 pounds of fresh halibut was imported from British Columbia. While landings at Seattle and American fleet landings at Prince Rupert were somewhat below those for May 1945, landings at the major Alaska ports were over 1-1/2 million pounds greater. In addition, the Canadian fleet delivered almost 9-2/3 million pounds in Prince Rupert and Vancouver.

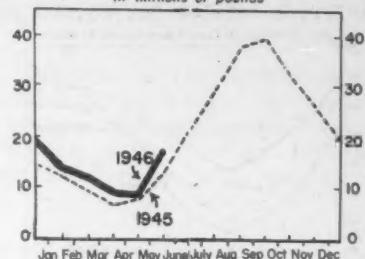
Operations of Seattle's local otter-trawl fleet declined during May with only 1,809,000 pounds of groundfish landed, nearly a million pounds below the April catch. The trawlers concentrated on catching the higher priced Petrale and English sole, with the result that the production of rockfish dropped considerably.



NORTHWEST COLD-STORAGE HOLDINGS: Approximately 17 million pounds of fish and shellfish were held in cold-storage plants in Washington, Oregon, and Alaska on June 1, according to the Service's Market News Office at Seattle.

Although considerable quantities entered the fresh markets, over 9 million pounds of halibut were frozen during the month and accounted for the major portion of the heavy inventories. Other species frozen in large quantities were king salmon, sablefish, fillets of English and Petrale sole, and rockfish. Total freezings amounted to 12,884,000 pounds during May, representing an increase of 410 percent over April and 12 percent above May 1945. Holdings on June 1 consisted mainly of the above species with the addition of bait and animal food.

COLD STORAGE HOLDINGS—NORTH PACIFIC
in millions of pounds



LANDINGS IN SOUTHERN CALIFORNIA: Fresh fish landings in the San Pedro-Santa Monica area totaled 477,000 pounds during May. This was a decline of 25 percent compared with landings during April, according to the Service's Market News Office at San Pedro.



Only 49,000 pounds of sardines and 900 pounds of yellowtail were landed during the month compared with 170,000 pounds and 41,000 pounds, respectively, in April. There was little difference in the landings of other individual species.

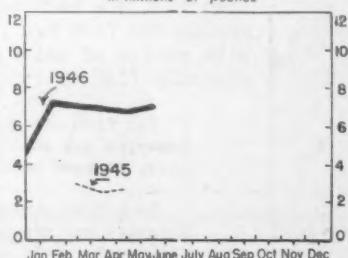
With few exceptions, prices of fresh fish in all southern California areas remained stable after the lifting of OPA price regulations on May 20.

Large landings of barracuda and yellowtail during May were reflected in the fresh fish landings at San Diego, and brought the total catch for the month to 332,000 pounds, an increase of 48 percent over April.

CALIFORNIA COLD-STORAGE HOLDINGS: May freezings of fish and fishery products in California plants totaled 457,000 pounds, as compared with 344,000 pounds during April and 1,050,000 pounds in May 1945, according to the Service's Market News Office at San Pedro.

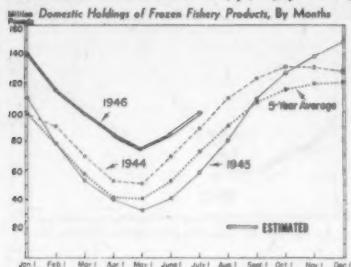
Holdings continued high during May with 7,039,000 pounds held on June 1. This was an increase of 344,000 pounds over May 1, and was 3,479,000 pounds greater than stocks held on June 1, 1945.

COLD STORAGE HOLDINGS—CALIFORNIA
in millions of pounds



United States

COLD-STORAGE FREEZINGS AND HOLDINGS: Domestic stocks of frozen fish and shellfish totaled 84,725,000 pounds on June 1, an increase of 9,407,000 pounds



over the holdings reported for May 1. The increase during May was 17 percent greater than the gain in holdings during May 1945, when stocks increased from 32,509,000 pounds on May 1 to 40,516,000 pounds on June 1. Holdings of frozen fishery products on June 1, 1946, were 109 percent greater than those on the corresponding date in 1945, and 61 percent above the 5-year average for this date, according to the Service's Current Fishery Statistics No. 272.

Freezings of fishery products in domestic cold-storage plants during May amounted to 34,375,000 pounds, compared with 27,630,000 pounds during May 1945. This brought the total freezings during the first 5 months of the year to 70,414,000 pounds, compared with 56,599,000 pounds for the corresponding period in 1945.



FAT CONTENT OF FISH

For best results in preparing a fresh fish, it is always desirable to know whether it is fat or lean. Fat fish are especially suitable for baking, and may also be broiled, while lean fish are best adapted to steaming, boiling, and frying. Medium-fat fish are prepared like the lean, or may be dressed with strips of salt pork or bacon and baked. Most cookbooks classify fish as follows:

Fat fish are those containing more than 5 percent fat. Examples are shad, mackerel, eel, butterfish, herring, por-
gies, striped bass.

Lean fish are those containing less than 5 percent fat. Examples are croaker, sea bass, weakfish, oysters, crabs, flounders, spot, whiting, clams.

CANNED AND CURED FISH

Shrimp

SHRIMP PACK: With the suspension of ceiling prices on shrimp, effective May 20, 9 of 28 canning plants resumed operations. Accordingly, the end of June saw 34,849 standard cases produced for the period May 26-June 29, bringing the season's total to 161,976 standard cases, according to reports to the Food and Drug Administration from plants served by its Seafood Inspection Service. This was 248,109 standard cases below the 1944-45 figure to June 30.

Wet and Dry Pack Shrimp in all Sizes in Tin and Glass--Standard Cases*

M O N T H			S E A S O N		3-yr. average July 1-June 30
1 9 4 6	1 9 4 6	1 9 4 5	1945-46	1944-45	3-yr. average July 1-June 30
May 26-June 29	Mar 17-May 25	May 27-June 30	July 1-June 29	July 1-June 30	
34,849	2,862	8	161,976	410,085	459,666

*All figures on basis of new standard case--48 No. 1 cans with 7 oz. per can in the wet pack and $\frac{1}{2}$ oz. per can in the dry pack.



Tuna and Mackerel

TUNA AND MACKEREL PACK: The production of canned tuna by California packers during May totaled 429,964 standard cases, according to the California Division of Fish and Game. This was 34 percent greater than the pack for April and 14 percent higher than May 1945.

California Pack of Tuna and Mackerel--Standard Cases*

Item	May	April	May	Five mos. ending with May--	
	1946	1946	1945	1946	1945
	Cases	Cases	Cases	Cases	Cases
Tuna:					
Albacore	-	-	-	25	1,448
Bonito	240	157	97	4,250	1,621
Bluefin	28,231	6,676	30,259	70,614	61,203
Striped	39,805	35,637	25,069	103,917	63,821
Yellowfin	273,643	203,219	177,407	812,747	453,848
Yellowtail	2,667	1,274	8	25,215	693
Flakes	85,378	73,818	143,706	227,717	272,977
Tonno style	-	-	1,630	-	1,630
Total	429,964	320,781	378,176	1,242,485	857,241
Mackerel	2,654	229	534	53,713	61,024

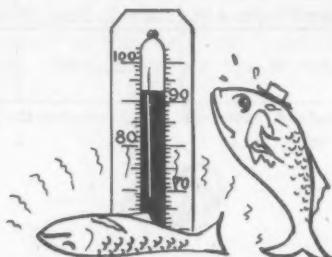
*Standard cases of tuna represent cases of 48 7-ounce cans, while those of mackerel represent cases of 48 1-pound cans.

Yellowfin tuna accounted for 64 percent of the May production. The total pack during the first 5 months of 1946 amounted to 1,242,485 cases, exceeding that for the corresponding period in 1945 by 45 percent.

The pack of mackerel during May was 2,654 standard cases as compared with 229 cases in April and 534 cases in May 1945. The 5-month pack of 53,713 cases was 12 percent below the pack for the corresponding months in 1945.



FISH DON'T LIKE HOT WEATHER !



Liberal icing of fresh fish shipments becomes more important as the weather grows warmer. Fish shippers lose money every year on inadequately iced consignments. Receivers also are penalized when shipments arrive out of condition. Sometimes recovery from transportation agencies is possible, but this rarely makes up for the failure of supplies that were counted on for a specific time and purpose. Many times, moreover, claims are not made, because of the bother, and any loss is written off.

However, the major losses are probably not in fish that are spoiled in transit, but in the reduced quality of fish that arrive in salable condition. Fish that have not received due care may have lost the delicacy of flavor that gives them appeal. Their sale to discriminating customers may injure trade.

Now is the time for fish dealers to check over their operations and see that their icing practices are as nearly perfect as they can make them. At the same time, they should check with all transportation agencies with which they deal, to see that re-icing is properly and promptly done. If rail and truck lines are put on notice, they are more likely to take pains. They too, can check their operations, see that each employee is notified, and if necessary instructed, so that he can handle fish shipments properly. Checking with receivers, too, may help to locate points where the care of fish shipments isn't up to requirements.

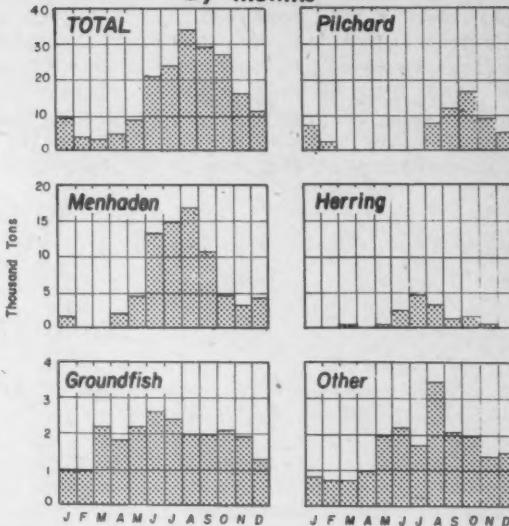
FISHERY BYPRODUCTS

Oil and Meal

PRODUCTION: Only a small quantity of fish oil is produced during the months of February through May. Heavy production begins in June and continues through the following January, with peak production occurring during September and October.

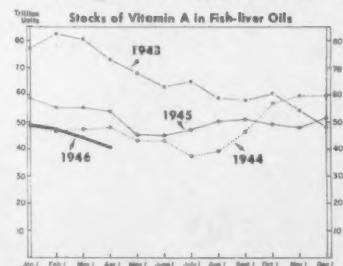
The production of fish oil during April totaled 73,221 gallons, compared with 104,808 gallons produced during April 1945, according to the Service's Current Fishery Statistics No. 270. Although complete data were not available on meal and scrap, items which normally account for about 94 percent of the total production showed an output of 3,390 tons during April, compared with 4,346 tons in April 1945.

Production of Fish Meal, 1945 By months



Vitamin A

STOCKS AND PRODUCTION: Stocks of vitamin A in fish-liver oil on April 1 were reported at 40 trillion units, a decline of 9 percent under stocks held on March 1 and 26 percent less than those of April 1, 1945, according to the Service's Current Fishery Statistics No. 273.



Production of vitamin A during March totaled 2.8 trillion units compared with 3.3 trillion units produced during March 1945. Total production during the first 3 months of 1946 amounted to 10.6 trillion units compared with 12.9 trillion units produced during the corresponding period of 1945.

Receipts of livers during February totaled 476,000 pounds, containing about 2.4 trillion units of vitamin A. During February 1945, 1,154,000 pounds of livers, having a vitamin A content of 4 trillion units, were received.

OTHER FISHERY NOTES

Army Food Program

In view of the excellent progress made during the war in fishery technological studies carried on cooperatively between the Quartermaster Corps of the Army and the Fish and Wildlife Service in Chicago, arrangements have been made for a continuation of this research. At the request of the Director of the Army's Food and Container Institute, the Fish and Wildlife Service has appointed a liaison officer to correlate the work of its laboratories with that of the Institute. Mr. J. F. Puncchar, as liaison officer, will serve in the over-all Army program by assisting and generally supervising the projects in which the Army is interested, and which are to be carried out in Service laboratories. The Army's courses in fish cookery will continue as in the past.



Book Review

NORTH AMERICAN GAME FISHES. By Francesca LaMonte, Doubleday & Company, Garden City, N. Y., 1946. \$3.00.

The first thing noted about this pocket size book on game fishes by the assistant curator of fishes at the American Museum of Natural History, is the large number of fine illustrations in color. The book is also well supplied with black and white illustrations to supplement descriptive text.

Miss LaMonte has tried to keep the book as near non-technical as possible so that the average fisherman may be able to identify his catch easily, whether it be from salt, brackish, or fresh water. A few non-game fish are included. Fishes taken in both salt and fresh or brackish waters are included generally with fresh-water fishes. It was the reviewer's reaction that it would have aided the angler if these species had been grouped separately or cross referenced in the two sections.

In general, the book is attractive and should be included in the field or home library of anyone who likes to fish for fun.



Canadian to Head Fish Division of FAO

The appointment of Dr. D. B. Finn of Canada as Director of the Fisheries Division of FAO was announced on June 18 by Sir John Boyd Orr, Director-General. Dr. Finn will resign the post of Deputy Minister of Canada's Department of Fisheries, which he has held since 1940, to accept the new position.

As head of the Fisheries Division, Dr. Finn will undertake the pioneering task of building up and operating the first intergovernmental fisheries organization with anything like as wide a scope in functions and membership. Forty-two nations are now members of FAO. The Fisheries Division will be concerned with both the consumption and production of fish on a world scale. Its aim will be to expand markets, improve the economic condition of producers, and serve the industry in a technical advisory capacity.

The first undertaking will be to survey world production and consumption as the basis for recommendations to be made at the next FAO conference, which will be held in Copenhagen on September 2.

Dr. Finn has an international reputation in his field. Before becoming Deputy Minister of Fisheries in Canada, he was chairman of Canada's Salt Fish Board, an organization directed toward the administration of government assistance to the depressed salt fish industry. Earlier, he reorganized and erected the Fisheries Experimental Station in Halifax, Nova Scotia, established the Fisheries Experimental Station in Prince Rupert, British Columbia, and carried on research in Canada and England on quick-freezing systems and the effects of low temperatures on fish muscle protein.



Oklahoma Fisheries

Commercial fisheries bringing over one million dollars a year to the fishermen of Oklahoma are described in an article in the June 1946 issue of Oklahoma Fish and Game, published by the State's Game and Fish Commission.

According to the article, fishing centers in Grand Lake in northeastern Oklahoma, in the Washita River, and in the Red River on the south border of the State. Carp, drum, buffalofish, and catfish are the main items handled.

State regulations require:

- (1) No netting or seining in April and May;
- (2) Meshes of seines and nets must be $2\frac{1}{2}$ inches square, or larger;
- (3) Only non-game fish may be taken in nets or seines;
- (4) A certified, salaried officer must be present when the seines or nets are run;
- (5) Commercial fishermen must pay a license fee of \$25 annually to the State Game and Fish Commission;
- (6) No fish taken in seines or nets may be transported, shipped, or sold outside of the State.

The article describes the operations of one fishing concern which catches as much as 3,000 pounds a day in 60 fyke nets.



Plastic Twine for Lobster Pots

Aside from the fact that frequent storms may put the lobster fishermen out of business by destroying their pots, they have to contend with salt water rot which attacks the wood, twine, and rope that make up their equipment, writes a Service bacteriologist of the Fishery Technological Laboratory at Boston. Since the average lobster fisherman handles from 100 to 150 lobster pots, maintenance becomes a major problem when repairs have to be made several times during the fishing season.



tion of plastic twine, lobster pot heads were made with twine or rope of vegetable fibers, and fungi, bacteria, and other marine life caused rapid deterioration of these materials.

In order to solve the problem of deterioration of netting and rope in lobster traps heads, experiments with plastic were undertaken by a commercial fisherman of Marblehead, Mass. Results of tests made indicate that for this use plastic twines will outlast any of the other twines being made.

It has been reported that these new plastic twines are easily woven and that elimination of replacement work during the season will result in a considerable saving in time and money. Several thousand lobster pots set out this spring have been equipped with plastic heads, and by the end of the fishing season it should be definitely known how well the new twine performs under full-scale commercial conditions.



Purchases of Fish by Department of Agriculture

April 1946 purchases of fishery products by the U. S. Department of Agriculture totaled \$35,854, a decrease of \$209,188 in value compared with March. Purchases for the period January 1 to April 30 amounted to \$3,828,635.

Purchases of Fishery Products by USDA

Commodity	Unit	April 1946		January-April 1946	
		Quantity	F.O.B. Cost	Quantity	F.O.B. Cost
FISH AND SHELLFISH					
Mackerel, canned	Cases	2,400	11,700	7,062	34,428
Pilchards, "	"	5,498	24,154	171,207	638,856
Salmon, "	"	-	-	277,034	3,029,414
Sardines, "	"	-	-	15,929	73,437
Grand Total		7,898	35,854	483,732	3,828,635



Wholesale and Retail Prices

Both wholesale and retail prices for all foods showed small increases from mid-February to mid-March, according to reports of the Bureau of Labor Statistics, Department of Labor. Average retail prices for fresh and canned and fresh and frozen fish displayed a rise of 0.4 and 0.3 percent, respectively, during the period and showed fair increases over March 1945. The average retail price for red and pink salmon also rose slightly during the period.

Wholesale and Retail Prices

Item	Wholesale: (1926 = 100)	Unit	Percentage change from		
			Mar. 16, 1946	Feb. 16, 1946	Mar. 17, 1945
All commodities		Index No.	108.4	+1.1	+3.1
Foods		do	109.5	+1.4	+4.7
Fish:			March 1946	Feb. 1946	March 1945
Canned salmon, Seattle:					
Pink, No. 1, Tall		\$ per doz. cans	1.970	0	0
Red, No. 1, Tall		do	3.694	0	0
Cod, cured, large shore, Gloucester, Mass.		\$ per 100 pounds	13.50	0	0
Herring, pickled, N. Y.		\$ per pound	12.00	0	0
Salmon, Alaska, smoked, N. Y.		do	35.00	0	0
Retail: (1935-39 = 100)			Mar. 12, 1946	Feb. 12, 1946	Mar. 13, 1945
All foods		Index No.	140.1	+0.4	+3.1
Fish:					
Fresh and canned		do	227.7	+0.4	+6.2
Fresh and frozen		\$ per pound	38.2	+0.3	+6.9
Canned salmon:					
Pink		\$ per pound can	24.9	+0.5	+1.3
Red		do	43.3	+0.9	+7.4



SEaweeds, which before World War II were very under-exploited, constitute one of our most valuable marine resources, reproducing themselves without artificial cultivation or fertilization, and supplying materials available from no other source.

--Senate Document No. 51

FOREIGN FISHERY TRADE

Imports and Exports

GRUNDFISH IMPORTS: From January 1 through June 1, 1946, there were 20,344,773 pounds of fresh and frozen groundfish imported into the United States, the Bureau of Customs, Treasury Department reported on June 13. The tariff quota for the year is 20,380,724 pounds, and all imports in excess of this figure will be subject to the full tariff rate of 2½ cents per pound.

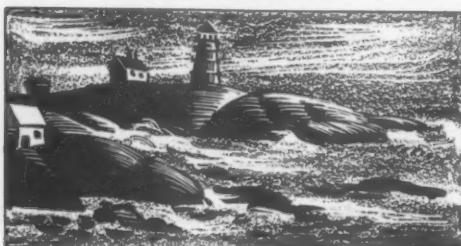
Commodity	Apr. 27-June 1, 1946	Apr. 1-27 1946	May 1945	Jan. 1-June 1, 1946	Jan. 1-June 2, 1945
Fish, fresh or frozen fillets, steaks, etc., of cod, haddock, hake, cusk, pollock, and rose-fish	3,983,146	3,945,194	4,437,164	20,344,773	16,439,040



Canada

FISHERIES OF NOVA SCOTIA: In a report on the fisheries of Nova Scotia received by the State Department from the American Consulate General at Halifax, Nova Scotia, it is stated that Nova Scotia's fishing industry is second only to its primary iron and steel industry in gross value of production. The text of the report is in part as follows:

The problems of the eastern Canadian fisheries are numerous. The industry is made up of many small incohesive units that find it costly to obtain and maintain proper equipment. When fishing for the fresh fish trade or when curing his own, the individual fisherman finds it difficult to break away and adopt new techniques.



In 1939, the value of packed and processed fish in the Maritime Provinces was slightly more than a tenth of the value of the catch, showing that little processing was done locally.

Eastern Canadian fishermen place a high value on their freedom of action and are considered extremely individualistic in their outlook. The industry has been looked upon as a gamble, and to some, cooperation takes away the spirit of the business. The fresh fish interests are opposed to the salt fish interests, and neither group exhibits a unified effort.

With modern developments the dried fish trade lost much of the North American markets, and it was necessary to look farther afield and develop new markets in Central America and the islands of the Caribbean and the countries surrounding the Mediterranean. The end of the first world war saw the reduction of purchasing power in southern Europe and the entrance of Norway and Iceland into these markets, together with a general fall in prices. This left the local fishing industry in precarious circumstances.

During the period between World Wars I and II, fishing was primarily carried on inshore, and only a few vessels operated on the banks. It is understood that during this period Canadian sea craft took less than seven percent of the cod annually caught on the banks. These offshore fisheries were exploited more vigorously by fishermen from the United States, Newfoundland, France, and Italy. It is reported that, in terms of efficiency, the fishing industry stood still during World War II in spite of good prices and demanding markets. The war, however, emphasized the need of a change in methods of marketing and necessitated a change in fishing methods. In this connection some changes have recently taken place; the industry is endeavoring to concentrate more heavily on the fresh trade and on local processing. While only three trawlers were licensed by the Federal Minister of Fisheries to operate in offshore waters before the war, there are now 10 trawlers and one dragger, with possibilities for more.

Prior to World War II it was recognized that the decline in the dried fish trade required new methods of marketing if the industry was to exist. As a consequence, the fresh, frozen, and smoked fish producers endeavored to expand. The fresh fish industry then attempted to enter fresh fish markets, but with old fishing techniques, including the lack of refrigeration services throughout distributive channels.

The Nova Scotia fisheries may be divided into two groups: the offshore fisheries and the inshore fisheries. The inshore fishermen usually operate within three miles of the coast, but sometimes venture as far out as twenty miles. The most suitable and prolific inshore fishing areas are, however, relatively close to shore. The offshore fisheries refer to the fishing banks farther out to sea, and are exploited by the trawler and schooner operators. For statistical purposes, "offshore" fish refer to the fish caught by vessels of over 40 tons; all other fish are grouped together as being from the "inshore" fisheries, having been caught by boats of under 40 tons.

Lunenburg, center of the salt fish trade, and Halifax, Yarmouth, Digby, Lockeport, North Sydney, and Canso, centers of the fresh fish trade, are the principal fishing ports, although many of the inshore fishermen are situated in the small fishing villages along the east coast.

In prewar years there was an average of 18,000 men engaged in fishing in Nova Scotia, with about 3,200 more employed ashore in the fish processing establishments, making a total of almost 22,000 employed in the industry. This figure declined, however, during the war. With the release of Service men from the armed forces, it is reported that there are now considerably more men engaged in the fishing industry. However, no estimate of the figure is available.

The hours of employment in the fisheries depend on the weather and the fishermen's equipment. In the inshore fisheries, a good boat with a marine engine cannot fish much beyond 140 days per year. For boats of less efficiency, the number of days may be cut down considerably. The hours of work are long--from dawn to sun-

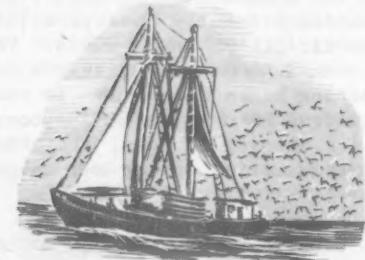
set in good weather. Working conditions are hard and difficult and, in many cases, miserable. For this reason, together with the fact that little monetary return is to be gained for the individual fisherman, it was difficult to obtain new men for the industry during the war.

The fishermen in the offshore fisheries do not work on a wage scale, but instead, each member of the crew takes an appropriate share of the landed value of the catch. The offshore crews may be out of port from a few days to six weeks at a time. These fisheries have not been prosecuted with as much vigor by Nova Scotia fishermen as might be expected of a seafaring province. In 1944, only 37 vessels on the fishing banks were of Canadian registry. This situation appears to be changing with the licensing of additional trawlers and with the objections of the schooner men and the inshore fishermen overruled.

In the inshore fisheries, one or two men operate each boat and divide the catch, the owner of the boat taking the largest share.

The inshore fisheries are worked by men in dories, sail boats, and gasoline driven motor boats, all less than 50 feet in length. The fishermen leave the shore early in the morning and return the same day. The best inshore fishing grounds are situated in the bays and numerous sheltered inlets, which form breeding and feeding grounds for a large variety of fish. A hand line, or trawl line, is used in the taking of cod and haddock, and for herring and mackerel, gill-net seines and trap nets are necessary, since the schools of these smaller fish move constantly along the coast.

The schooners fishing on the Grand Banks are usually about 140 feet in length, with a draft of 12 feet and a weight of about 100 tons. Vessels of this size carry about 26 dories for trawl fishing and for hand-lining. The fishing operations are carried out in waters 20 to 80 fathoms deep. A trip to the Grand Banks is usually of about six weeks to three months in duration. When the nearer banks are fished, the trip may last only a few days. Since the nearer banks provide fish for the fresh trade, the trips must necessarily be brief.



percent of the total value of the groundfish exports went to American markets, and by 1932 this figure rose to 62 percent. This increase was not confined to groundfish, but repeated itself with regard to lobsters and pelagic fish. The Hawley-Smoot Tariff of 1930 did not decrease Canada's exports to the United States, but merely reflected itself in a lower standard of living for Canadian fishermen in the Atlantic fisheries.

At the present time, the fresh, frozen, and smoked fish find their markets in Upper Canada and the United States (during the war, Great Britain purchased large amounts of frozen and smoked fish). The dried, pickled, and salted fish are marketed chiefly in the islands of the Caribbean and in Central America. It is reported that local exporters are reluctant to attempt to reenter the dried fish markets in southern Europe.

The transition from the salt or dried fish trade to the fresh or frozen trade has been retarded in Nova Scotia because of the distance to the market in upper Canada and in the United States, by the reluctance of the industry to give up the dried fish tradition, and the lack of spirit and enterprise in adopting new techniques.

It is reported that the future of the Nova Scotia fisheries lies in the expansion and continued development of the fresh fish trade, and it is the consensus among local producers that the market in upper Canada and in the United States, now very active, will maintain itself. With the increase in the fresh fish trade, the technology of the industry is taking a turn to modernization; refrigeration plants are increasing in number, and distributive channels are being strengthened.

FISHERIES IN 1944: An advance report on the fisheries of Canada for 1944 has been issued by the Dominion Bureau of Statistics in cooperation with the Dominion Department of Fisheries and the Provincial departments which have jurisdiction over the fisheries of their respective provinces.

The report states in part as follows:

The value of Canada's fisheries attained a new peak in 1944, the \$89,418,600 (Canadian currency) recorded being an increase of \$3,824,000, or 4.5 percent, over that of 1943. Higher prices were again the predominant factor in the increase, as the quantity caught fell off by 4.8 percent. The total represents the value of the fish as marketed, whether fresh, canned, cured, or otherwise prepared, and includes the value of such by-products as oil and meal. The sea fisheries contributed \$78,093,100, or 87.3 percent, and the inland fisheries \$11,325,500, or 12.7 percent, to the total.

The salmon fishery retained the leading place, despite a reduction of 11.5 percent in the quantity landed. The marketed value was \$16,373,200 as compared with \$15,613,200 in 1943.

According to marketed value, British Columbia led the other provinces with 39.0 percent of the total, followed by Nova Scotia with 26.4 percent.

The total quantity of all kinds of fish, including shellfish, taken by Canadian fishermen in 1944 was 11,771,000 hundredweight, a decrease of 4.7 percent as compared with 1943. The sea fisheries accounted for 10,908,000 hundredweight, or 92.7 percent, and those of inland waters for 863,000 hundredweight, or 7.3 percent. Landed quantities and values are shown by provinces in the table which follows:

	Quantity caught	Value as landed cwt.	Quantity caught	Value as landed cwt.
Prince Edward Island ..	272,227	1,797,308	Manitoba	293,231 2,830,060
Nova Scotia	3,345,588	14,851,100	Saskatchewan	129,588 1,032,061
New Brunswick	1,751,725	5,403,571	Alberta	76,338 454,798
Quebec	1,008,860	3,974,495	British Columbia	4,583,226 17,333,347
Ontario	310,392	4,389,273	Yukon	281 3,131
Totals	6,688,792	30,415,747	Totals	5,082,664 21,663,397



COLD-STORAGE: A gain of 44 percent in May in the holdings of fishery products in Canadian cold-storage plants was indicated in preliminary reports of the Department of Trade and Commerce of the Dominion Bureau of Statistics. Holdings on June 1 were recorded at 22,335,000 pounds, compared with 15,537,000 pounds on May 1 and 17,489,000 pounds on June 1, 1945. The gain over May 1 was due mainly to increases in the holdings of halibut, sea herring, and cod fillets.



Greenland

FISHERY EXPANSION: The Greenland Administration is encouraging the building of fishing vessels, according to a report sent to the State Department by the United States Legation at Copenhagen, Denmark.

Any person recommended by the local authorities may obtain a new boat if he is able to pay one-tenth of the purchase money and will obligate himself to deliver one-fifth of the catch until the cost of the boat has been paid. This is usually possible within eight years.

The new vessels are used in the traffic between Denmark and Greenland as coast vessels and as fishing boats for the Greenland population. It is intended to increase the Greenland fishing fleet to about 200 boats, compared with 73 prior to the war.



Iceland

PROCESSING OF FISH: Significant changes in the processing of fish in Iceland are reflected in the following table published in the April 1946 Statistical Bulletin of the National Bank of Iceland and the country's statistical bureau:

Mode of Preparation	Sea Fisheries	
	January-March 1945 Pounds	1946 Pounds
Fish on ice	112,540,000	80,457,000
Fish frozen	54,288,000	65,353,000
Stockfish	675,000	198,000
Canned fish	448,000	794,000
Salted fish	1,276,000	12,707,000
Home consumption	1,409,000	657,000
Total	170,636,000	160,166,000

The table shows the portion of the catch (in weight of drawn fish) diverted to each type of processing. In 1946, there was a significant gain in fish frozen and salted, while fish packed in ice declined.

Italy

UNRRA PROGRAM: Notes on the work of UNRRA's fishery work in Italy were included in Issue No. 19 of Economic Notes, publication of the agency's Italian Mission. Excerpts follow:

FISHING INDUSTRY REHABILITATION: Initial assistance provided by the Allied authorities to the Italian fishing industry, which the war had brought to a standstill, has now developed into a comprehensive long-term plan drawn up by UNRRA in cooperation with the Italian authorities. Italy's 5,300 miles of seaboard has always afforded widespread seafaring activity and a means of livelihood to many thousands of fishermen and merchant sailors.

Though the Mediterranean is one of the poorest fishing grounds in Europe, the Italian fishing industry, with its large and up-to-date fleet, provided as much as 200,000 tons of food annually. Power fishing was carried out by some 1,400 units, of which approximately 1,300 were engaged in deep-sea trawl-fishing and fitted with 50 to 300 H.P. engines. Coastal or mid-water fishing with fixed nets, bow nets, and fish lines gave employment to about 30,000 sail and row boats.

There was also a small but efficient ocean fishing fleet, consisting of about 25 units with a gross tonnage of 12,000 tons, which operated off the coast of northern West Africa (Mauretania), Newfoundland, and Iceland. The official annual yields were stated as follows:

	Tons
Coast fishing	130,000
Tuna	3,000
Pond	7,000
Shellfish bridings	8,000
Fresh waters fishing	10,000
North Western Africa (frozen fish by trawlers)	5,000
Newfoundland and Iceland (salted fish by trawlers)	6,000
Total	169,000

Many Italian authorities give the total catch as nearer 200,000 tons, on the grounds that fishermen would report lower figures in order to evade harbor dues and other liabilities. About 130,000 men were employed in the industry, and the value of the total catch was estimated at approximately \$8,490,000.

After September 8, 1943, the Italian fishing activities were greatly reduced. The smaller craft had been largely damaged or destroyed; the larger fishing vessels had been requisitioned for mine-sweeping. Equipment such as nets, hemp, and cotton twines, steel cables, and other essential gear were either looted or destroyed and could not be replaced. Many fishermen had sunk their craft so as to avoid seizure by the Germans. Shipyards, workshops, net factories, and refrigerating plants had been rendered useless by bombing or sabotage.

Access to fishing grounds was made very difficult, either because of restrictions imposed by the Allied Naval Authorities for military reasons, or because



mines and wreckage made sailing unsafe. Havoc had been caused to inland waters, where during the war period, fishing by explosives and poisons had been extensively practised, with the consequent destruction of stock, particularly of minnows.

Rehabilitation of the fishing industry is now proceeding. Mined beaches are being cleared and obstructions of ports and channels removed. Sunken motor fishing vessels, and row and sail boats are being salvaged and repairs carried out on damaged and partially destroyed craft. Steps have been taken to secure release of units of the fishing fleet as military necessities have ceased.

Over 1,000 tons of supplies provided by the Allies substantially contributed to the re-equipment and repair of fishing craft. Rehabilitation of net factories, workshops, and shipyards has been planned, and petroleum products imported by UNRRA are supplied to fishermen through local agencies of the Comitato Italiano Petroli.

Large quantities of raw cotton have been supplied by the Allied Commission and later by UNRRA. UNRRA has requested an allocation of 500 tons of Manilla fibre and 500 tons of coir yarn, which are still in considerably short supply. UNRRA is also importing 300 tons of linseed oil for the manufacture of paints.

The chief handicap to rehabilitation of power-driven fishing craft was fuel shortage. Allocations of UNRRA procured fuel through the Italian Government Agency, CIP, have now reached approximately: Diesel oil 62 percent, kerosene 68 percent, and gasoline 35 percent of demand, enabling craft to operate on an average of 16 days a month.

After a lapse of six years, an Italian ocean-going trawler has been able to operate outside Mediterranean water. The rebuilding, refitting, and fuelling of larger units is now under consideration, and plans in this connection have been submitted to UNRRA. Re-stocking of lakes and rivers has been materially assisted by one consignment of 70,000 rainbow trout eggs flown to Italy from the United States. UNRRA has already arranged for a second load of 70,000 trout eggs to be flown from Wisconsin during the month of May. The fry have been distributed to experimental breeding ponds throughout Italy.

Staff members of the UNRRA Fisheries Branch, working in close conjunction with local authorities, are at present making inspections of all Italian fishing ports.

Apart from the fact that the high nutritive value of fish proteins and fats help to make up the deficiencies of the average diet, it is essential that Italy should be given every opportunity to produce her own food, so as to relieve the acute shortage and ease her dependency on imports. Such fish, or portions of it, as are not consumed directly as food, may be converted into essential by-products such as industrial oils, vitamin A and D bearing oils, livestock and poultry feeds, and fertilizers.



Japan

JAPAN'S FOREIGN TRADE: Japan's prewar foreign trade has been summarized in a May 1946 leaflet of the International Reference Service of the Department of Commerce. The following tables list the fishery products mentioned in the leaflet:

Japan's Principal Exports--1937-39 and 9 Months 1940

Commodity	Q U A N T I T Y				V A L U E						
	(In Thousands of lbs.)		Jan-Sept	1937	1938	1939	Jan-Sept	1937	1938	1939	1940
Tangles and sliced tangles	68,688	52,903	78,256	50,931	2,698	2,638	7,342	8,285			
Fish and shellfish, fresh	25,080	29,327	42,979	34,477	3,942	5,352	7,803	7,193			
" " " dried:											
Cuttle	5,491	1,639	6,688	5,101	2,202	977	4,723	3,718			
Trepang	2,099	4,029	3,925	2,568	1,578	2,350	6,668	5,183			
Ligaments of scallops	1,255	995	2,204	988	1,351	1,257	5,557	3,167			
Fish, salted, trout	38,059	28,366	77,438	5,904	1,992	2,155	9,968	999			
Fish liver	-	-	5,514	5,538	-	-	6,047	10,141			
Fish and animal oil:											
Sardine	82,823	35,557	4,397	-	9,304	2,746	560	-			
Cod liver	-	-	1,689	-	-	-	3,174	-			
Other fish	13,125	7,354	3,813	-	1,953	2,520	244	-			
Hardened oil, fish	67,999	43,735	42,960	-	9,524	4,333	3,881	-			
Fishing nets, cotton	4,834	3,037	4,039	2,015	4,336	3,053	3,635	2,312			
Sardine fish meal	159,157	79,513	57,174	2,032	9,235	4,506	4,188	157			
Comestibles in tin:											
Crabs	24,544	19,119	38,524	10,343	19,874	15,244	30,323	8,344			
Salmon	36,345	50,938	49,550	2,115	18,626	26,383	27,092	1,075			
Trout	46,506	54,194	40,951	13,978	8,865	10,079	8,907	4,317			
Tuna fish	17,671	9,915	18,738	5,495	7,786	4,067	8,860	3,201			
Sardines	92,627	56,232	53,402	21,605	11,176	7,543	7,922	4,769			
Other fish	3,973	6,119	5,421	1,696	1,047	1,823	2,032	774			
Shellfish	3,715	4,950	5,190	1,963	971	1,510	2,154	952			

Japan's Principal Imports--1937-39 and 9 Months 1940

Commodity	Q U A N T I T Y				V A L U E						
	(In Thousands of lbs.)		Jan-Sept	1937	1938	1939	Jan-Sept	1937	1938	1939	1940
Shells of mollusca	19,202	8,388	15,497	9,126	3,795	1,587	2,466	1,586			

In 1939, 17.9 percent of Japan's export trade and 34.4 percent of her import trade by value was with the United States. Fishery products roughly approximated five percent of the value of all exports of that year.



Newfoundland

Fish products produced in Newfoundland during 1945 were valued at over \$25,000,000 (Canadian currency), according to a dispatch to the State Department from the U. S. Consulate General at St. John's. The chief item produced was salted cod-fish, with 106 million pounds salted, valued at \$14,000,000.

Among Newfoundland's principal exports to the United States were the following fishery products:

	Pounds	Value (Canadian Currency)
Salted codfish	23,924,000	\$3,048,000
Frozen cod fillets ..	6,372,000	1,303,000
Herring	4,024,000	928,000
Cod oils	1,323,000 U.S. gals.	771,000

FROZEN FILLETS: A contract for the sale of Newfoundland codfish fillets to Great Britain was signed during the latter part of March, according to a report to the State Department from the American Vice Consul at St. John's.

Following negotiations in Montreal, the contract was signed for a total of 7,393,000 pounds to be sold to the United Kingdom at a price "slightly lower" than was paid for the 19,000,000 pounds furnished to Britain in 1945.



South Africa

FUR SEALS: Expansion of sealing operations in the Union of South Africa is imminent, The South African Shipping News and Fishing Industry Review for March 1946 reports. The South African seal fishery is based on the capture of the Cape fur seal (Arctocephalus pusillus). This species visits Cape Cross and numerous islands and rocks of the waters of South Africa.

With the exception of the Cape Cross rookery, which is controlled by a concession granted by the Administration of South-West Africa, all the seal islands are controlled by the Union Department of Agriculture, and sealing operations are carried out under the direction of the Superintendent of the Government's Guano Islands.



The Cape fur seal is taken principally for the skins, which are obtained from 6 to 9 months' old pups of both sexes, and not, as in the case of the Alaska fur seals, from 3-year old males or "bachelors."

The skins are not dressed in South Africa, but are sent to Britain and the United States for this purpose. The finished article is said to compare favorably with the Alaska seal fur.

Expectations for postwar expansion are based on research work at the University of Cape Town, which has shown that a first-class oil can be processed from seal blubber; that seal intestines constitute another useful source of oil; that seal livers are rich enough in vitamin A to make them rank almost as high as shark and codfish

livers as a source of this vitamin; and that there are other possibilities of using seal carcasses.

Providing proper facilities can be made available for this difficult and dangerous industry, and providing economic outlets can be found for the byproducts, the killing of seals may be increased substantially. While some 25,000 seals have been killed annually in South Africa during the war years, the resource is considered capable of supporting a greater take. The fitting out of a factory ship is being considered as a major part of an expansion program. Two vessels already constructed or being built for use in the guano traffic may be adapted for use in sealing.

DEVELOPMENT: A 5-year plan for the establishment of a 10-million dollar fishing industry in the Dido Valley in the Union of South Africa at Simon's Town was reported in the April 1946 issue of The South African Shipping News and Fishing Industry Review. The development will include the building of a fishing harbor and the opening up of building sites for the Union's leading fishing concerns. The total amount of the 10 million dollars is expected to be spent on the harbor, factories, plants, housing, and other construction associated with the enlargement of commercial activities in the area.

The plans were developed because of the overcrowded conditions of the fishing harbor at Kalk Bay. Also considered was the fact that the projected harbor will reduce considerable mileage from the distance trawlers have to run from the Agulhas Bank to port. This factor will be of particular importance during the winter months.

SPINY LOBSTERS: The South African crawfish industry is expected to double its prewar output of frozen tails within the next year, according to the March issue of The South African Shipping News and Fishing Industry Review. After six years of inactivity during the war, the industry is taking on a new lease of life. Large exports have been made to the United States during the past few months, and preparations are being made for expansion. Reports indicate that there is no shortage of crawfish, but that lack of suitable transportation facilities has handicapped the distribution of crawfish to home markets as well as for export.



Negotiations for the purchase and construction of a large number of 40- to 65-foot fishing boats have been begun, and a South African steamship line is making provision for the construction of large refrigeration chambers in its latest vessels. These sections are specifically designed for the conveyance of frozen crawfish tails.

Crawfish grounds extend roughly from Port Nolloth to Cape Point. There are no good grounds on the East Coast except one recently discovered off Natal in waters so deep that commercial fishing is not feasible. In 1940, the whole crawfish industry employed over 3,700 persons and operated 6,400 tons of small vessels.

TUNA: Technological research on the tuna of South Africa is discussed in The South African Shipping News and Fishing Industry Review for April 1946. Dr. W. S. Rapson and Dr. H. M. Schwartz of the Chemistry Department of the University of Cape Town, in conjunction with the Union's Division of Fisheries, are making a study of tuna liver oil as a source of high vitamin D potency oils. Assistance is being requested of anglers and commercial fishermen.

The most common species of tuna in South African waters is the bonito or Cape katonkel (Sarda sarda). Skipjack (Katsuwonus pelamis), yellowfin (Neothunnus macropterus?), bluefin (Thunnus thynnus), and frigate mackerel (Auxis thazard) also are found in this area.



SOUTH PACIFIC FISHERY

The South Pacific Coast receives the greatest volume of fish landed anywhere in America. The foremost fishery is for the sardine, the largest fishery resource in the Western Hemisphere, which supplies raw material for cheap canned foods, fish meal, and oil. The tuna fisheries, operating mostly south of the United States, as far as Ecuador, supply an important canning industry in southern California. Unlike conditions on the North Atlantic Coast, food-rich water in the Pacific is not confined to the continental shelf. It extends many miles to sea over deep water and supports large populations of many kinds of pelagic fishes. The California catch in 1942 amounted to 1,173 million pounds.



--Senate Document No. 51

FEDERAL LEGISLATION, DECISIONS, ORDERS, ETC.

Department of Agriculture

CANNED ALASKA SALMON: The Production and Marketing Administration, United States Department of Agriculture, announced on June 13, in Announcement SC-87, that it will receive offers for the sale of canned Alaska salmon required to be set aside in 1946 pursuant to War Food Order No. 44.

Purchases will be made by negotiated contracts executed by the Commodity Credit Corporation. The contract terms and conditions are set forth in three separate documents:

Form PBT-400, Standard Contract Conditions, contains conditions which may apply to purchases of all commodities;

Form SCT-56, Canned Fish - General Contract Conditions, contains additional terms applying to purchases of canned fish;

Form SCO-87, Canned Alaska Salmon - Offer of Sale, which details the conditions applying specifically to these types of fish.

Canners who expect to operate during 1946 are requested to submit their proposals on the offer of sale form as soon as practicable but in any case prior to September 15, 1946.

Excerpts from SCO-87 follow:

SPECIFICATIONS: Fish delivered hereunder shall meet the requirements of "Federal Specifications for Canned Salmon," PP-S 31a (7/29/41), Section B to F, inclusive, provided that except for reds and chinooks, Section E-1 of such specifications shall be revised for the purpose of this contract to delete the words "shall be reasonably free from watermarking" and insert in lieu thereof, the words "Watermarking shall be scored only when texture, color of flesh, amount of oil, odor, and flavor have been affected."

All fish delivered hereunder shall conform in every applicable respect to the requirements of the Federal Food, Drug and Cosmetic Act and amendments and regulations thereunder.

MINIMUM QUANTITY AGREEMENT: Irrespective of any reductions in the quota to be delivered by the contractor under War Food Order No. 44, the CCC at the contractor's option, agrees to purchase at least 10 percent of the seller's pack (or such lesser percentage as contractor may tender), of fish, packed between April 1, 1946 and March 31, 1947.

CANNED MACKEREL - WEST COAST: The Production and Marketing Administration, United States Department of Agriculture, announced on June 12, in Announcement SC-88, that it will receive offers for the sale of canned Pacific mackerel and canned Pacific horse mackerel required to be set aside in 1946 pursuant to War Food Order No. 44.

Purchases will be made by negotiated contracts executed by the Commodity Credit Corporation. The contract terms and conditions are set forth in three separate documents:

Form PBT-400, Standard Contract Conditions, contains conditions which may apply to purchases of all commodities

Form SCT-56, Canned Fish - General Contract Conditions, contains additional terms applying to purchases of canned fish

Form SCO-88, Canned Mackerel - West Coast, Offer of Sale, details the conditions applying specifically to this type of fish

Offers must be submitted prior to December 1, 1946.

Excerpts from SCO-88 follow:

SPECIFICATIONS: Fish delivered hereunder shall meet the following specifications:

A. Fish shall be firm, of good appearance, well cleaned, practically unbroken and practically free from objectionable material. Salt or salt brine shall have been added to the can. Cans shall be packed as full as practicable. The average net content of the No. 300 (300 x 407) can shall be not less than 15 ounces. If other sizes of cans are used, the net content shall be in the same proportion as the relative size of the can.

B. Definitions: The term "net content" means the total weight of the fish and liquid in the can. The term "well cleaned" means that the fish shall have the heads and scales removed; tails shall be removed to the extent that they shall not be present in amounts in excess of 20 percent by count of pieces of fish; and shall be free from entrails and other objectionable offal.

C. A lot may be considered as meeting specifications if not more than one-sixth of the containers in a lot fail in some respect to meet requirements of these specifications; Provided, that none of the containers which may fail to meet the specifications shall fail to meet the requirements of the Federal Food, Drug and Cosmetic Act and amendments and regulations thereunder.

CANNED PILCHARDS: The Production and Marketing Administration, United States Department of Agriculture, announced on June 25, in Announcement SC-90, that it will receive offers for the sale of canned pilchards required to be set aside in 1946 pursuant to War Food Order No. 44.

Purchases will be made under negotiated contracts executed by the Commodity Credit Corporation. The contract terms and conditions are set forth in three separate documents:

Form PBT-400, Standard Contract Conditions, contains conditions which may apply to purchases of all commodities

Form SCT-56, Canned Fish - General Contract Conditions, contains additional terms applying to purchases of canned fish

Form SCO-90, Canned Pilchards - Offer of Sale, details the conditions applying specifically to this type of fish

Offers must be submitted prior to October 1, 1946.

All of the claimants this year prefer oval tomato pilchards but they have been advised that it will be impossible for canners to pack only this style for delivery to the Government. It is requested, however, that canners make every effort to deliver as much fish in tomato sauce as possible, preferably in oval cans.

All No. 1 oval cans should be packed with tomato sauce: Natural style pilchards in No. 1 oval cans are not acceptable unless prior written approval has been granted to canner by a CCC Contracting Officer. Eight-ounce short (211 x 300) or $\frac{1}{2}$ oblong cans will be accepted either natural style or with tomato sauce, but fillets and "short-cuts" in any size cans are not acceptable.

When tomato sauce is used, No. 1 oval and No. 300 (300 x 407) cans shall have added at the time of packaging not less than $1\frac{1}{2}$ ounces of tomato sauce having a specific gravity of not less than 1.06 before the addition of salt and spices, except that tomato sauce of a lower specific gravity may be used provided sufficient additional sauce is added so that the total amount of tomato solids of the lower specific gravity of tomato sauce shall be equal to the total amount of tomato solids in $1\frac{1}{2}$ ounces of tomato sauce having a specific gravity of 1.06 before the addition of salt and spices.

There shall be added to a smaller or larger size container an amount of tomato sauce proportionate to that added to the No. 1 size can.

Tomato sauce shall be made from whole ripe tomatoes and may have added salt and spices but no sugar, and must comply with the applicable requirements of the Federal Food, Drug, and Cosmetic Act and amendments and regulations thereunder. At time of cut-out, tomato sauce shall be of good consistency and not excessively oily.

Excerpts from Form SCO-90 follow:

SPECIFICATIONS: The fish delivered hereunder shall meet the following specifications:

A. Fish shall be firm, of good appearance, well cleaned and practically unbroken. Cans shall be packed as full as practicable. In round cans the length of the fish shall be packed parallel to the side of the can; in oval and other flat type cans the length of the fish shall be packed parallel to the bottom of the can. The average net content of the No. 300 (300 x 407) can or the No. 1 oval can shall be not less than 15 ounces and shall contain not more than twelve nor less than four fish. If other sizes of cans are used, the net content shall be in the same proportion as the relative size of the can. The fish shall be packed natural or with added oils or sauces as may be specified by CCC.

B. Definitions: For the purpose of these specifications, the following definitions shall apply:

1. The term "natural" means without the addition of any condiments except brine or salt, but may have added oil of the same species of fish.
2. The term "net content" means the total weight of the fish and liquid in the can.

- 3. The term "well cleaned" means that the heads shall be removed, the red and green feed that has exuded from the stomach or entrails shall not be present, shall be practically free from scales, and not more than five (5) percent of fish may contain entrails.
- 4. The term "entrail" is defined as any portion of the stomach or entrail exceeding $\frac{3}{4}$ inch in length, except that any portion containing red or green feed shall be scored as an entrail regardless of its length.
- 5. "Practically free from scales" means that not more than 5 percent by count of fish may possess scales on each fish which in the aggregate exceeds one-tenth of the surface area. Fish which possess scales covering one-tenth or less of the surface area are not scored.
- C. A lot shall be considered as meeting specifications if not more than one-sixth of the containers in the lot fail in some respect to meet the requirements of the specifications: Provided, That none of the containers which may fail to meet the specifications shall fail to meet the requirements of the Federal Food, Drug and Cosmetic Act of June 25, 1938, as amended, and to all regulations thereunder.

Supplement No. 1 to Announcements SC-85, Canned Continental U. S. Salmon, and SC-87, Canned Alaska Salmon, was issued on June 13, 1946, by the U. S. Department of Agriculture to provide for strapping and marking charges. Announcements SC-85 and SC-87 have been printed in the June and July issues, respectively, of Commercial Fisheries Review.



Food and Drug Administration

CANNED SHRIMP: Charges for canned shrimp inspection by the Sea Food Inspection Service of the Food and Drug Administration will be raised effective July 1, 1946, according to F&DA orders published in the Federal Register of June 1. The following changes will be made:

In Sec. 155.00 (a) "\$315" is changed to "\$450."

In Sec. 155.02 (a) "\$210" is changed to "\$300."

In Sec. 155.2 (b) "\$210" in each instance where it appears is changed to "\$300"; "\$315" in each instance where it appears is changed to "\$450"; "\$7.00" is changed to "\$10.00."

By these changes the basic charge per month was raised from \$210 to \$300. The inspection fee per case remains at 10 cents.



Department of the Interior

HALIBUT RULING: On June 21 the Department of the Interior issued a ruling on an appeal from the decision of the Area Coordinator with respect to allocation of American halibut in Prince Rupert, British Columbia, Canada.

The findings, in part, are as follows:

"The allegations indicate a lack of recognition of the purposes of the program and its aim to preserve the historical channels of distribution during the time of emergency. The appellant did not sell American halibut before the war and has been accorded the same treatment as other new dealers in the field. As a matter of fact, exceptional recognition was given to the appellant as a new dealer and proper allocation made to it in the interest of establishing good will and maintaining harmonious trade relations. If the appellant, a cooperative, has in recent months expanded by accepting American fishermen as members, it has done so with full knowledge of the requirements of the allocation program, and should realize the obvious inequity which would result to dealers in the field before the arrival of the Association, from enlargement of the percentage of the landings to be permitted to newcomers, like the Association, while those dealers are still held subject to the allocation restrictions. No information other than that supplied by the appellant has been received by the Department to the effect that because of the American allocation program 'the system of allocation of Canadian halibut has almost entirely broken down.' Since the appellant has supplied no substantiating evidence, the point need be discussed no further than to observe that an alleged deterioration of the Canadian halibut program could in no event alter the position of this Department in the circumstances. If the cooperative finds itself in a disadvantageous position, it must be attributed to its own ill-advised action in enlarging its membership beyond the point at which their requirements could be met under the present allocation program.

"Accordingly, the appeal of the Prince Rupert Fishermen's Cooperative Association is dismissed, and the decision of the Area Coordinator is affirmed."



International Fisheries Commission

HALIBUT AREAS: The International Fisheries Commission, on May 30, determined upon the date of June 11, midnight, as that upon which Areas 1B and 2 as defined in the Pacific halibut regulations shall be closed to all halibut fishing except that provided for in Article I of the Convention.

Area 1B is defined to include all convention waters between a line running northeast and southwest through Cape Blanco Light and a line running northeast and southwest through Willapa Bay Light on Cape Shoalwater.

Area 2 is defined to include all convention waters off the coasts of the United States of America and of Alaska and of the Dominion of Canada between Area 1B and a line running through the most westerly point of Glacier Bay, Alaska, to Cape Spencer Light, thence south one-quarter east.

Area 1A, lying south of Cape Blanco, will close to halibut fishing with Areas 3 and 4.

Vessels fishing for halibut in Area 1A after closure of Areas 1B and 2 are required to have their licenses validated in a Customs port in Area 1A such as Eureka.

Section 4(b)(1) of the Halibut Conservation Act is cited to support this rule. Reference should be had to a copy of the regulations for further details regarding these boundaries.



Office of Price Administration

SQUID PRICES: Amdt. 32 to OPA's Supplementary Order No. 132, effective May 22, 1946, exempted from price control domestic and imported canned and frozen squid.

The total sales volume at the retail level of canned and frozen squid amounts to less than three quarters of a million dollars annually.

CRABMEAT SPECIALTIES: The Office of Price Administration, on June 13, removed all price controls from imported and domestic frozen crabmeat specialties. This was done by one of the provisions of Amdt. 37 to Supplementary Order 132--Exemption and Suspension from Price Control of Certain Foods, Grains and Cereals, Feeds, Tobacco and Tobacco Products, Agricultural Chemicals, Insecticides and Beverages.

SUGAR ALLOTMENTS: The Sugar Rationing Section of the Office of Price Administration, after receiving complaints from fishermen, issued a letter on or about June 20 to its field offices, in which they pointed out that the clause relating to "refreshments" in General Ration Order No. 5 (Secs. 7.6 and 7.7) had never, or in very few instances, been applied or used in giving fishing vessels an increase in their allotments. If, in the preceding allotment period, fishermen had received at least two refreshments per day (coffee or "mug-ups," in addition to the regular meals), they can now obtain .015 pounds of sugar per refreshment, not to exceed two refreshments per day. This would mean a total increase in the allotment per man per day of as much as .03 pounds. In other words, .9 pounds per man per month (counting 30 days to the month) might be added to the present sugar allotment of 3.6 pounds, making a total of 4.5 pounds.

The complaints indicated that the present allotment of 3.6 pounds is not always sufficient since wheat products and other foodstuffs are less available now than they had been at the beginning of the year, when this allotment was established.

Fishermen may wish to take advantage of this opportunity for obtaining more sugar by requesting the additional allotment from their Ration Board.



Section 4(b)(1) of the Halibut Conservation Act is cited to support this rule.

See page 3

Treasury Department

PARTY BOAT FARES: All vessel owners planning to charter their vessels for party fishing or to transport fishing parties for hire, either on a total party or individual fee basis, are reminded of certain requirements to which they are subject under the Federal Internal Revenue Code.

Section 3469 of the Code imposes a tax at the rate of 15 percent of amounts paid for the transportation of persons. The tax applies to transportation by water, as well as by motor vehicle, rail, or air. Since the carrying of fishing parties by boat on fishing trips or to fishing grounds is "transportation" within the meaning of the Code, the tax applies to such transportation if the charge for the transportation is paid in the United States.

It is important to note that the tax applies only to amounts paid for transportation. Thus, when the amount or amounts paid for a fishing trip include charges for the use of fishing tackle, or a supply of bait, these charges, if reasonable and separable from the transportation charge proper, may be excluded from the total charge in determining the amount to which the tax applies.

The only exemption from the tax pertinent to this discussion is one which exempts transportation charges amounting to 35 cents, or less, per person. This means that if the total transportation charge made for each individual transported (that is, the total amount paid less reasonable charges for tackle or bait, when a separation of these charges is possible) amounts to 35 cents, or less, the tax does not apply. It does not mean that whenever the transportation charge made for each individual transported amounts to more than 35 cents, the first 35 cents may be excluded in computing the tax.

Vessels are frequently let out on charter for fishing purposes to persons or organizations for a fixed lump-sum amount. In these cases, if the amount paid for the charter of the vessel represents a per capita transportation charge of more than 35 cents for each individual actually transported on the trip (and provided no charge is made to such individuals by the person or organization chartering the vessel), that portion of the total amount paid for the charter which represents the transportation charge is subject to the 15 percent tax. If, on the other hand, the person or organization chartering the vessel makes a transportation charge to the individuals transported of more than 35 cents per person, the tax applies to these amounts and not to the lump sum paid for the charter.

The law provides that the tax must be collected from the person making the taxable transportation payment by the person receiving the payment. The person receiving the payment is then required to report and pay over the tax each month to the collector of internal revenue for his district. The return form used for this purpose is Form 727, which can be secured from collectors' offices. The return must be prepared and filed in duplicate and, unless the amount of tax is \$10.00, or less, must be executed under oath. Where the tax is \$10.00, or less, the form may be signed or acknowledged before two witnesses instead of under oath. The return must be filed on or before the last day of the month following the month for which it is made. All persons required to file returns and report the tax must keep accurate records to enable internal revenue officers to verify the liability reported on their returns.

This notice is for informational purpose only and does not have the effect of law, regulation, or official ruling. Its purpose is only to place vessel owners on notice as to their possible obligations under the internal revenue laws. All vessel owners desiring further information in regard to the tax are referred to the collector of internal revenue for their district and to the pamphlet entitled "Regulations 42 (1942 Edition), Relating to Taxes on * * * Transportation of Persons" issued by the Bureau of Internal Revenue of the U. S. Treasury Department.



FRESH-WATER FISHERY RESOURCES

When the average man speaks of "fishing," he has in mind a fresh-water stream or lake. These bodies of water individually contain rather small populations of fishes; but all the streams and creeks, lakes and ponds in the United States add up to a vast quantity of water, and the fish in them to a tremendous total in pounds of food.



vey made (in 1931), the sum of all their efforts runs close to 85 million pounds of fish a year. They operate with all kinds of gear--with gill nets, fyke nets, traps, haul seines, hook and line, spears, and many other, less conventional apparatus.

As impressive as these commercial fisheries may be, anglers fishing for recreation take a very much larger total from our fresh waters than do the commercial fishermen.

It is estimated from the number of State licenses bought and from various other sources that in the year ending June 30, 1943, at least 12 million people took advantage of our recreational fishing resources.

--Senate Document No. 51

RECENT FISHERY PUBLICATIONS

Listed below are informational publications which recently have been processed by the Division of Commercial Fisheries. FL publications are available, free of charge, from the Fish and Wildlife Service, Merchandise Mart, Chicago 54, Ill. Other listed publications may be obtained, also free of charge, from the Division of Commercial Fisheries, Fish and Wildlife Service, Washington 25, D. C.

Number	Title
CFS-220 (Revised)	- Canned Fish and Byproducts, 1944
CFS-265	- Landings at Certain New England Ports, February 1946
CFS-268	- Frozen Fish Report, May 1946
CFS-269	- Landings by Fishing Craft New York City, 1945
CFS-273	- Vitamin A Report, March 1946

Reprints (Features) From Commercial Fisheries Review, May 1946.

- Sep. No. 134 - The Army's Wartime Fishery Research
- Sep. No. 135 - A Tripod Derrick for Small Fishing Vessels
- Sep. No. 136 - Fishery Receipts at Seattle, 1945
- Sep. No. 137 - Fish Jaw Oil

Designations for fishery publications are interpreted as follows:

CFS - Current fishery statistics of the United States and Alaska.

SL - Statistical lists, consisting of lists of dealers of fishery products and manufacturers of byproducts.

FL - Fishery leaflets.

MDL - Market development lists of frozen food locker plants and locker associations.



Compositors: Jean Zalevsky
Norma C. Dressler

SPINY LOBSTER OF FLORIDA

The spiny lobster of Florida is not closely related to the New England lobster, although people sometimes confuse the two. One of the chief differences is the fact that the spiny lobster lacks the giant claws that are a characteristic feature of the New England lobster and provide a considerable quantity of choice meat. All the meat of the spiny lobster comes from the flexible abdomen or "tail." The frozen lobster tails, still encased in their shells of mottled green and brown, are the common market form.



Present catches of the spiny lobster amount to slightly less than half a million pounds, taken chiefly on the Florida Reef from Miami to Dry Tortugas. Although this species occurs as far north as Beaufort, N.C., United States fishermen seldom take it outside the State of Florida. The best fishing grounds are along the southern shores of the reefs and keys. A related form is found on the Pacific Coast, south of Point Conception.

The average market size of the Florida spiny lobster is about 9 to 10 inches, exclusive of the long antennae.

Most of the catch is made at night in pots which the lobsters enter as they crawl about to feed, for they are nocturnal prowlers. During the day they lie hidden under rock ledges or among sponges, where they may be detected in clear water by the protruding antennae. Coral reefs, rocky bottoms, and other grounds which provide good cover are their favorite haunts.

--Conservation Bulletin No. 37

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